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PAPER TRADE JOURNAL

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Vol. XC. No. 14 — PAPER — Thursday, April 3, 1930

Prospects for Increased News Print Prices Dim

Falling Off In Consumption Indicates Quotations will be Unchanged During Latter Half of Current Year—Further Mergers Believed to Provide Most Practical Solution of Problem—Amalgamation of International and Abitibi Regarded Possible—Canada Power & Paper Co. May Figure In New Line-Up

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 1, 1930.—With the prospects for increase in the price of news print during the latter half of the present year becoming more dim owing to the falling off in news print consumption, further mergers are looked forward to as providing the more practical solution of the problem how to make the news print mills profitable. Two consolidations of major importance are now regarded here as definite possibilities. One is the amalgamation of the Abitibi Power and Paper Company with the International Paper Company, and the other is the amalagamation of the St. Lawrence Paper Mills, the Brompton Pulp and Paper Company and the Lake St. John Power and Paper Company. That the Canada Power and Paper Company will figure somewhere in the new line-up is taken for granted, and although rumors are conflicting there seems little doubt the announcements along the lines indicated will come in the near future.

International in British Columbia

A despatch from Vancouver states that the International Paper Company is expected shortly to announce a program for expansion in British Columbia, as a result of its application for extensive water rights on the Kokish River.

Kokish River is in northern Vancouver Island, near the Nimpkish River, where power rights were acquired some time ago by Canadian Forest Products Ltd., backed by the International Harvester interests. Now the International Paper Company is understood to have taken the option held on the property of the Canadian Forest Products Ltd. and is planning to establish a large pulp and paper mill on Vancouver Island, which will be the company's first producing unit on the Pacific coast.

The proposal to utilize the Kokish signifies, it is believed, the company's intention to tie up the consolidated power resources of the two rivers so as to provide ample hydro resources to operate a mill much larger than was previously contemplated by Canadian Forest Products.

The provincial government has a reserve on the Kokish River site at present and has a party of engineers making a survey of the power possibilities there.

International Expansion at Gatineau

The Canadian International Paper Company has placed an order with Canadian Vickers, Ltd., of Montreal, for five Kidwell boilers, for installation in its news print mill at Gatineau, Que. The boilers will have a capacity of 1,300 h.p. each, and the plant will cost $1,000,000.

The boiler house will be completed and ready for operation October 1, when electric energy now being delivered by Gatineau Power Company for the generation of steam at the mill will be released for delivery to the Hydro-Electric Power Commission of Ontario under its contracts with Gatineau Power Company.

This month marks the third anniversary of the starting of Gatineau mill, an all-electric paper mill. On March 31, 1927, the sulphite mill began production, followed by the groundwood mill five days later. The first machine began making paper for shipment April 14, and the last of the four installed in the mill was producing news print by August 19, of that year.

Rail Rates on News Print

The new tariff increasing the railroad rates on news print from Canada to the United States is being held in suspension prior to a hearing to be held before the Board of Railway Commissioners in Ottawa on April 10.

New Tariff Hits B. C. Lumber

A serious blow to the lumber industry of British Columbia has been dealt by the United States Senate in passing an amendment proposing a $1.50 a thousand feet on imported lumber, though there is still a possibility, it is said, that the proposal may be vetoed. From Vancouver it is announced that the proposal, if finally adopted, will have a direct and important effect on the lumber movement to the United States, to the extent of approximately $2,000,000 a year. The indirect effect may be greater still in that the higher cost of Canadian lumber as a result of the tariff may divert business to other territory. The duty applies to fir, spruce, pine, hemlock and larch.

American lumbermen in Washington and Oregon are delighted with the Senate action and regard it as conclusive. They hope that the tariff will be the means of lifting their industry out of the doldrums.

Market for Wall Board in England

Gerald A. Newman, assistant trade commissioner for Canada in Liverpool, writes that the British market is one of the most important outlets for all kinds of wall board. In 1929 wall board to the value of £250,000 ($1,216,665) was imported from the United States alone. Canada is represented in this market by several well-known producers, two of whom began doing business in a large scale in this country during the past year. While there are as many as seventy-five different brands being advertised in the United Kingdom, the firms of major importance are about ten in number.

Kimberly-Clark Corp's Earnings Increase

Annual Report Shows Gratifying Expansion, Including Acquisition of Lakeview Mill at Neenah, Wis.—Earnings for 1929 Amounted to $3,272,000 Compared With $2,154,000 for 1928, a Gain of 49 Per Cent—Bright Outlook for Organization

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 31, 1930—Improvements and expansion made during 1929 by the Kimberly-Clark Corporation, with main offices and mills at Neenah, Wis., amounted to more than $2,000,000, according to the annual report. Earnings of the company also were highly gratifying, amounting to $3,272,000 as compared to $2,154,000 for 1928, a gain of 49 per cent.

Acquisition of the Lakeview mill at Neenah, Wis., from Sears, Roebuck & Co., was the largest item in the expansion outlay. A large sum was also spent to re-equip and enlarge the mill preparatory to its use for specialties. New tracts of timber land were also bought to augment the supply of pulp wood for the future.

Earnings in 1929 Were $6.54 a Share

Earnings in 1929 were equivalent to $6.54 a share on the common stock as contrasted with the cash dividend requirements of $3. a share. Cash and securities on hand at the close of the year totalled $2,500,000. Earnings also reflect the receipt of $262,500 received in 1929 as the semi-annual dividend on holdings of preferred stock of the Spruce Falls Power and Paper Company, Ltd. Kimberly-Clark owns 51 per cent of the stock and the *New York Times* owns 49 per cent.

"Results of the expenditures of expansion are being reflected in increased sales and earnings during the first two months of 1930 compared to the same months last year, "declares F. J. Sensenbrenner, president. "With additional improvements and extensions now under way and contemplated, the position of the company will be further strengthened."

An Advantageous Power Arrangement

Because there are no water power facilties at the Lakeview mill, the Kimberly-Clark Corporation effected an advantageous power arrangement with the Wisconsin-Michigan Power Company, local utility. A large industrial substation, the largest the company has, was built by the power company next to the Lakeview mill. Thus the mill is supplied with 2,000 h.p. daily The energy is transformed through three 1,000-kilowatt transformers, stepping from 33,000 volts to 460 volts.

Forest Products Laboratory Expansion

Further progress in the establishment of a new laboratory at Madison, Wis., for the United States Forest Products Laboratory is seen in the passage by the United States Senate of the bill appropriating $900,000 for this purpose. Senators from Wisconsin are working diligently for final enactment of this measure into law so a much needed improvement can be available to the paper industry and others as soon as possible. The land has been furnished by the University of Wisconsin Board of Regents.

When this new building is erected, Wisconsin will have the unquestioned leadership in the research of paper chemistry, due to the presence in the State also of the Lawrence Institute of Paper Chemistry, at Appleton, Wis.

Bonding of Growing Forests Suggested

Bonding of cities or counties for the purpose of establishing forest preserves is the suggestion of C. G. McLaren, forester of the Tomahawk Kraft Paper Company, Tomahawk, Wis. He proposed this in a recent address before the State Land Commission. The idea of present benefits rather than future promises should be given consideration, he said. Growing forests could be bonded just like any other property. He added that scientific forest management depended upon a co-ordination of marketing problems with cutting and planting programs.

News of the Industry

Because of their large income taxes, three paper mills in the township of Plover, Wis., pay enough revenues so it is unnecessary to levy a property tax to maintain the township. The incorporated village of Plover, unable to participate in this tax rate of .00000, expects to vote at the April election to dissolve the village and merge with the township.

Marinette, Wis., mourns the death of Aaron Pareira, of New York City. Mr. Pareira came to Marinette about ten years ago and established the Victory Bag and Paper Company. It grew to be one of the largest industries in the city under his management. He disposed of his interests about three years ago and moved east.

Announcement also is made of the death of Lewis H. Elsner, 68. of Appleton, Wis., last week. He was owner of the Fox River Wire Cloth Works, which he had operated since 1903. He is survived by his widow and seven children.

House Discusses Tariff Bill

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 2, 1930.—Discussion was begun in the House of Representatives on Monday in connection with the sending of the tariff bill to conference. It is expected that this action will be taken by the end of the present week and that the bill will be in conference anywhere from one to two months. Predictions being made here by those who have followed the situation is that the bill will become law around the first of June.

The conferees on the bill include Senator Smoot of Utah, chairman of the Senate Finance Committee, and Senators Watson of Indiana and Shortridge of California for the Republicans and Senators Simmons of North Carolina and Harrison of Mississippi for the Democrats. Shortridge selection is by virtue of the fact that Senator Reed of Pennsylvania is now in London at the naval conference.

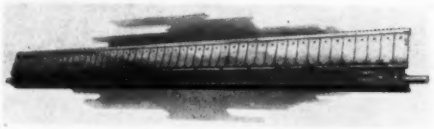
The House will be represented by Representatives Hawley of Oregon chairman of the Ways and Means Committee and Treadway of Massachusetts and Bacharach of New Jersey for the Republicans and representatives Garner of Texas and Collier of Mississippi for the Democrats.

Parsons Paper Co. Is Busy

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., April 1, 1930—Officials of the Parsons Paper Company in a recent statement predict a prosperous year for the local concern. At present it is stated that the machines are being run at full speed and it is expected that they will continue to do so. The statement follows:

"The paper industry is undoubtedly in a better condition than some others; and we ourselves have little complaint to make regarding conditions. We are running full and were so doing for the greater part of 1929. We anticipate little or no change in prices and labor conditions are satisfactory. On the whole the outlook is hopeful for a busy and successful year."



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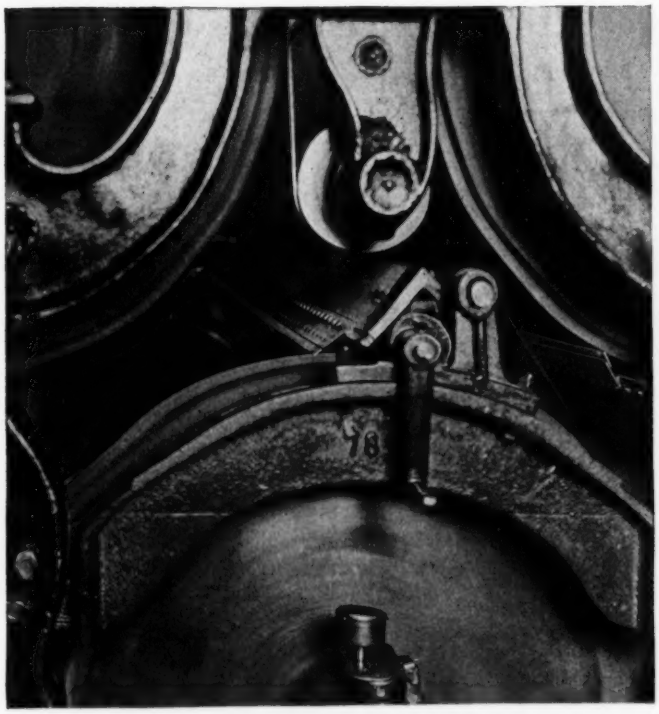

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Demand for Paper Falls off Slightly in Chicago

Heavy Blizzard Slowed Business Practically to Standstill for Several Days—Future Outlook for Kraft Paper Market Not Promising, Due to Over-Production and Excessive Accumulations—Prospect for Fine Paper Market More Encouraging

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 31, 1930—Conditions are little changed over last week in the Chicago paper market. A heavy blizzard slowed business down almost to a standstill and this, tied up with other basic items said to be retarding business, caused a slight reaction according to reports. Comment relative to the kraft situation has quieted down though no reasons for any immediate improvement in the situation are noted. Converters stocks are reported to be fairly heavy and this, coupled with the price situation and over production, doesn't make the near future any too bright.

Lack of rain in the vicinity of the northern ground wood mills bids fair to create a very strong ground wood market this spring. The water supply is reported to be four or five feet shy of even last year at this time. A strong market should be the logical result. News print, while not as good as last year, is slowly going on the upgrade. By the middle of April the market should be about normal. Book papers are steady and prices o. k. Fine papers did not improve in the past week. Production has now practically caught up with demand, according to reports. However, with fine papers as with tissues, the approach of Easter, school activities, etc., should strengthen the market within the next month. Board representatives report about 75 per cent mill production capacity with the price situation still not righted. Waste papers are fairly active and look reasonably good for the next quarter of the year.

Paper Salesmen's Banquet Well Attended

The Chicago Paper Association held its annual Salesmen's Banquet on Tuesday evening, March 25, in the ball room of the Medinah Athletic Club and although the date was set on the occasion of one of the worst blizzards that has hit Chicago in years, 210 out of a possible 300 members of the association and their salesmen braved the elements to attend. It was quite a program and compared favorably with past events of this character which are one of the features of the association's yearly programs. D. F. Peck, president of the association, was toastmaster of the evening's program. He himself discussed some of the plans, policies and future hopes of the association, outlining the need for cooperation and for strict adherence to sound business policies. He pointed to the past achievements of the association and made public some of the many excellent results obtained by the membership in its efforts to make the coarse paper market in Chicago profitable and stable. He introduced Mr. Rosenthal of Cornell & Rosenthal, a building contractor well known in Chicago, who spoke for a period of twenty minutes on various subjects dealing with business conditions of today. No other definite program was carried out, the entire affair terminating in a bit of entertainment that added to the good fellowship of the program.

News Print Mileage Scale Discussed

Comment by the "Scrutator," financial writer for the *Chicago Tribune*, is interesting as he applies it to the news print industry. In discussing mileage scale in railroad rate structure the Scrutator says "Some products seem to lend themselves to mileage scales. Steel is one and steel men ordinarily do not dislike the idea. One mill is satisfied to market within a radius of 500 miles or so and to keep competitors out by the same token. On the contrary, news print paper is produced in restricted sections and used all over the country. It is difficult to see why a newspaper in southern Illinois should have to pay a rate high on the distance scale while one in New York pays a small one because the source of supply is near the latter." "It is the inflexibility of the mileage scale and its tendency to zone the country, to destroy the national market that is disturbing."

News of the Trade

A folder, unique in design, color type and copy, sent out by the Reading Paper Mills, is attracting considerable attention in the Chicago market. The folder is printed on Kinkora cover, a paper that seems to be adaptable to many uses. The paper is described as coming in six colors—white, briar rose, periwinkle, tiger lily, daffodil, golden poppy and mignonette—and retaining fine texture, strength and attention qualitities to a marked degree. It comes in light, medium and heavy cover grades.

Chicago paper buyers are always getting a combination of good humor and common sense out of the Seaman Paper Company house organ the "Forecastle," the special editor's number now perching on the writer's desk. Incidentally it is Number 10, volume 1, which will give you some idea of its age. The issue is printed on Caravan Super. One column on the first page entitled "Purely Personal" should go with customers of Seaman. It pokes fun, gives news and acts up like a good little house organ column. On the third page is a note from Clayton Seaman a part of which reads "No magazine—not even a house organ—has ever achieved real success without first achieving the appearance that good paper gives." And on the back cover is a funny bit of copy in rhyme which talks about "Dummies" and ends up with a neat appeal to get in touch with the Dummy Department of the Seaman Paper Company.

The Chicago offices of the Flambeau Paper Company, Park Falls, Wsiconsin, are helping Paul Joslin, assistant manager of the Flambeau Paper Company, in his celebration over the arrival of Miss Jean Joslin. The young lady was born at 11:15 a. m., March 25, according to the exact statistics provided by her dad. Jean has a baby brother too, so the Flambeau offices tell us. And Mrs. Joslin is doing quite well.

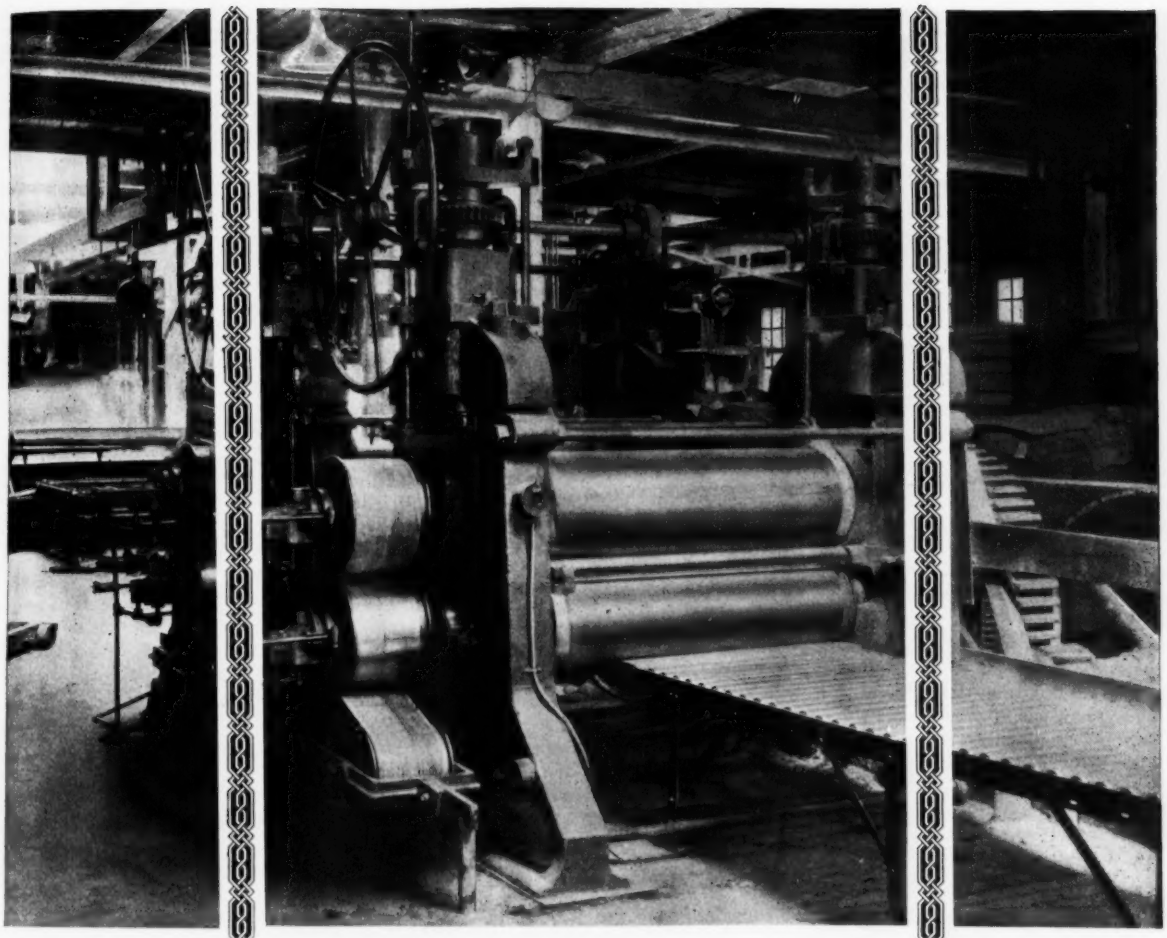
To Standardize Stamped Envelopes

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, O., March 31, 1930—The work of standardization of stamped envelopes produced by the International Envelope Company, formerly known as the Mercantile Corporation, has just been started at the Front street plant in this city in the buildings formerly occupied by the Mead Paper Company. As is well known, this contract extends over a period of years, and involves millions of dollars.

Michael L. Eidness, superintendent of stamps of the United States Postal department, came here to supervise the standardization work by which it is hoped great economies will be effected, and immediately conferred with Howard F. Marston, general manager of the concern, and W. W. Barre, president agent of the United States stamped envelope division.

Mr. Eidness discussed the first steps in the elimination of dies and processes at the Dayton plant. He pointed out that it is planned in this, the first standardization of stamped envelopes in many years, to reduce the number of varieties of envelopes from 100 to only 16 and the number of patterns from 10 to 6. Eidness stated that in the last 44 years, revenue from stamped envelopes, postal cards and stamps has increased from over $2,000,000,000 to more than $22,000,000,000, making possible enormous savings through the reduction of overhead by standardizing.



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Ontario Pulp and Paper Makers' Safety Work

Secretary-Engineer Costigane Reports Record for Past Year Compared Favorably With Preceding Twelve Months—Howard Smith Paper Mills Awarded Safety Contest Trophy—Hawkesbury Mill of International Paper Co. Wins Class A Contest

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, March 31, 1930.—Safety matters and accident prevention problems in the pulp and paper mills of Ontario were under review at an enthusiastic annual meeting of the Ontario Pulp and Paper Makers' Safety Association in the King Edward Hotel, Toronto, following a dinner at which Victor Sinclair, chairman of the Workmen's Compensation Board, was the chief speaker. Mr. Sinclair addressed the large number of mill representatives present on the relations existing between his organization and the pulp and paper industry in the Province, pointing out that all groups of the pulp and paper industry had operated at a lower compensation rate during the past year than during the previous year, with the exception of the logging group.

Compensation costs in the pulp and paper mills had been reduced from $2.00 to $1.50, which indicated that the industry was profiting from their excellent work along safety lines. While the lumber industry had made great progress in accident prevention it was more difficult to get safety practices in the logging group than in any other, largely owing to the outdoor nature of the work and the moving about of the workmen. He urged efforts toward rehabilitation of injured men in the pulp and paper industry and suggested that more attention might be paid by the mills in the way of placing men in positions for which they are the most suitable.

In a discussion, lead by George Carruthers, of the Interlake Tissue Mills, Ltd., following the address, it was suggested that the mills could save money by enlisting medical and first aid services at the outset of accident cases rather than attempt to reduce medical aid costs.

Accident Record Shows Improvement

According to the report of the secretary-engineer, A. P. Costigane, the record for the past year as compared with last, was fairly satisfactory. The non-fatal accident record shows considerable improvement and the fatal accident record compares equally with even the best year in the past. This was due to improved organization in each mill and closer co-operation with the association. The total number of accidents compensatable and non-compensatable for 1929 is 1,242, involving lost time amounting to 17,853 days, as compared with 1,354 non-fatal accidents involving 20,338 days lost time in 1928. This means there has been a decrease in non-fatal accidents of 112, equal to 8.27 per cent and a decrease in time lost of 2,485 days, or equal to 12.21 per cent. During the year under review the total number of employees decreased from 10,113 in 1928 to 10,097 in 1929. This means a decrease of employees of .15 per cent. This decrease of employees being so small does not detract in any degree from the general good showing for 1929. The decrease in both frequency and severity for 1929 is very definitely marked.

As compared with 1928 the fatal accidents are stationary, there being six in each year. "That record is as good as in any previous year," comments Mr. Costigane, yet we, as an association, view with considerable alarm such recurrent fatalities year after year. Of course we do not mean to infer that progress has not been made, but we are desirous of drawing to your attention the causes of such fatalities, some of which may be considered out with the activities of the pulp and paper industry. Nevertheless, compensation in all cases quoted has been paid for out of the funds accruing by assessment from the industry. Safety record and first aid contests may have helped towards a fairly satisfactory condition during the year but as there exists a difference of opinion among the various mills in respect to the advantage of such contests your secretary-engineer thinks it advisable to leave this phase of accident prevention in abayance at the present time. It will probably crop up again in the near future.

"The economic condition in the high grade paper and specialty mills, speaking generally, is good but the condition as far as the news print mills are concerned is not too favorable, due to the shutting down periodically of several mills in Ontario. This condition reflecting over-production will probably right itself in due time but at present the situation is causing anxiety to most students of industrial economics in Ontario and elsewhere. What the solution of the news print mills difficulties will be, time only can tell. Speaking generally industry is in my opinion in a very sound position.

Safety Contest Winners

A feature of the gathering was the representation of trophies and medals to the winners of the various safety contests staged during the year. The trophy for 1929 offered for competition by the Ontario Pulp and Paper Makers' Safety Association, was won by the team representing the Howard Smith Paper Mills at Cornwall with the score of 376 points out of a possible 400. The running up team was that of the Kenora Paper Mills, Ltd., with a score of 359 points out of 400 maximum. The trophy and individual medals were presented to the former team and individual medals to the Kenora team. Class A contest was won by the Canadian International Paper Company, Hawkesbury, Ont., with a record of 11 non-fatal accidents involving 103.5 days lost time or equal to .079 days lost time per 1000 hours exposure to hazard. Class A runner up was the Abitibi Power and Paper Company, Sault Ste. Marie, with a record of 53 non-fatal accidents involving 665.5 days lost time or equal to .471 days lost time per 1000 hours exposure to hazard. Don Valley Paper Company, Ltd., Toronto, was Class B winner with a record of one non-fatal accident, involving six days lost time or equal to .059 days lost time per 1000 hours exposure to hazard, while Class B. runner up was Miller Bros. Company, Glen Miller, with a record of 1 non-fatal accident involving nine days lost time or equal to .061 days lost time per 1000 hours exposure to hazard.

To Inquire Into Woods Operations Costs

Following a report presented by William Miller, Chief Sanitary Inspector for Ontario, in which he stated that the total bill for accidents in woods operations had risen from $35,000 to $58,000, it was recommended that the incoming executive appoint a committee to go into the question of mounting compensation costs in the woods department. This action will be taken early this year.

Interlake Tissue Had Good Year

According to the annual report of the Interlake Tissue Mills, Ltd., Thorold, Ont., just issued, the company earned gross profits in 1929 of $150,220. Bond interest absorbed $11,635, depreciation $63,926, income tax, $6,300 and premium on bonds redeemed $40. Net profits were left of $68,319. This, however, was after allowing 42.7 per cent of gross profits for depreciation. On the 6,250 shares of capital stock of $100 outstanding profits were equal to 10.93 per cent as compared with 8.22 per cent in 1928 and 6.02 per cent in 1927. Dividends were paid at the rate of 6 per cent, amounting to $37,500, and $30,819 was added to surplus, which brought the total amount carried forward into the current year $146,983. The balance sheet shows total assets of $1,729,319 made up of fixed assets of $1,380,115 and current as-

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sets of $349,204. Current liabilities were $59,902 making net working capital $289,302. Reserves aggregated $705,478, of which $584,691 was for depreciation and $106,717 in distributed surplus. Capital stock stood at $625,000 and first mortgage bonds outstanding $192,000. The firm are large manufacturers of tissues, toilets and other light weight papers.

Directors for Year Appointed

The following directors were appointed to serve during the current year: F. S. Duncan, Provincial Paper, Ltd.; J. Halbert, J. R. Booth Company; George Carruthers, Interlake Tissue Mills, Thorold; Howard Smith, Jr., Howard Smith Paper Mills, Ltd.; J. E. Patterson, Abitibi Power and Paper Company; C. B. Thorne, Canadian International Paper Company; A. G. Pounsford, Provincial Paper, Ltd.; D. L. McLeod, Ontario Paper Company, Ltd.; C. Nelson Gain, Interlake Tissue Mills, Ltd.; H. G. Schanche, Abitibi Power and Paper Company; J. H. Black, Spruce Falls Power and Paper Company; D. McLeod, Kenora Paper Company; J. Silver, Abitibi Power and Paper Company; John Ball, Beaverboard Fibre Company; J. Wilson, Dryden Paper Company; Arthur Brown, E. Pullan Ltd., Toronto.

New General Manager For Firstbrook

It was announced in Toronto this week that George Brown, who for the past several years has been secretary-treasurer of Firstbrook Boxes, Ltd., Toronto, had been promoted to be general manager and secretary-treasurer of the company, one of Canada's largest manufacturers of paper and wooden boxes. Mr. Brown succeeds E. Victor Donaldson, who is the new general manager of the Robert Gair Company. He is widely known in paper box circles in Canada and in the business world generally for he was for some years with the Atlantic Sugar Company. He first broke into the paper box game with the Rudd Paper Box Company, under W. P. Bennett, where he was employed as a salesman. When the Rudd Paper Box Company was merged with the Firstbrook Company, Mr. Brown was given a responsible position with the combined companies and he now moves up to the post of general manager. He has many friends in the paper box and paper industries who will congratulate him on his rapid rise in industrial circles.

B. C. Pulp and Paper Co. Profits Down

The fourth annual report of British Columbia Pulp and Paper Company, Ltd., covering the fiscal year ended December 31, 1929, is in the hands of the Ontario shareholders. It shows operating profits of about $123,000 less than for the preceding year. This reflects in part the conditions which prevailed in the sulphite pulp market, but it is pointed out in the report that sales and profits were also temporarily reduced through the diversion of part of the company's production from one market to another in the latter part of the year. The change in marketing arrangements is stated to be already working out to the benefit of the company. The balance sheet shows maintenance of a satisfactory working capital position. Property additions made during 1929 amounted to $216,546. First mortgage bonds outstanding were further reduced by $85,000 through operation of the sinking fund. The company's current assets include Dominion guaranteed bonds and accrued interest thereon totalling $246,375, as against $150,500 shown in the preceding report.

Provincial Paper Bonds Recede

During the present phase of strengthening bond prices financial quarters have thought it somewhat strange that over the past month there has been a recession in the market for the first mortgage 20-year 5½ per cent sinking fund bonds due in 1947, of Provincial Paper Ltd. The price has declined in the interval from a basis of 98-98½ to the current level of 93-96. When it is remembered that the company recently passed to control of the Abitibi Power and Paper Company that the bonds themselves are strongly secured by Provincial Paper assets, and that in 1929 the interest requirement was earned about five times over, it may be seen that the easier price is difficult to understand. The issue is outstanding at $5,000,000 par value. An amount of $300,000 was redeemed and cancelled during 1929 while, further, the company itself at the end of last year held $425,000 of these bonds in its own investment account, thus obviating further provision for sinking fund account until 1934. At the end of 1929 total assets of $212,127,117 were shown, of which property and plant represented $8,819,528. Further there were general investments of $630,578, and current assets of $2,659,011. Net working capital was $2,142,422 on a current ratio of 5 to 1. The bonds are followed by $3,500,000 of 7 per cent cummulative preferred stock, on which the quotation has remained relatively steady in recent weeks. The entire issue of 100,000 shares of no par value common is now owned by Abitibi.

Notes and Jottings of the Trade

A provincial charter has been granted the Specialty Pad and Paper Company, Ltd., with headquarters in Toronto, to carry on the business of stationers, printers, lithographers, etc., with an authorized capital of $50,000. Among the incorporators are Clifford Pain and Elgin C. Winchester, both of Toronto.

S. F. Duncan, president of Provincial Paper, Ltd., Toronto, has returned from a holiday stay at Pinehurst, N. C.

A provincial charter was recently granted Harcourt Paper Company, Ltd., the head office of which is in Montreal. The company is authorized to carry on business as importers, jobbers, wholesalers and retailers of all kinds of paper and paper products, with a capital stock of $15,000.

Final approval of the plans for the new paper converting plant for Pacific Mills, Ltd., that is to be erected in Vancouver, B. C. has been given by F. N. Youngman, vice-president and general manager of the company. Tenders are now being invited for construction of the plant. Buildings to house the plant will cost about $100,000 and the equipment another $50,000 at least. It will be Vancouver's first paper mill, utilizing pulp from the company's big pulp mill at Ocean Falls and converting it into sanitary paper towels, serviettes and other similar lines for which there is said to be an increasing demand.

Reg. N. Boxer, of the Reg. N. Boxer Company, Ltd., wall paper manufacturers, Toronto, has returned to the city from Montreal where he had gone to attend the funeral of the late S. S. Boxer, formerly chairman of the board of the company whose death occurred recently.

Peter Christie, of Mid-West Paper Sales, Ltd., Winnipeg, recently underwent an operation in the Winnipeg General Hospital and his many friends in Toronto were glad to learn a few days ago that he was on the road to recovery. He is well known in paper circles in Ontario.

The Abitibi Power and Paper Company, Ltd., is represented in the play-offs for the Allan hockey cup, representative of the amateur hockey championship of Canada, by the Iroquois Falls team, all the members of which work in the Abitibi mill there. The team became intermediate champions of the Ontario Hockey Association by defeating Paris and played off with Hamilton Tigers for the senior honors.

Charles Buss, general superintendent of Provincial Paper, Ltd., has returned to Thorold, Ont., after spending a few weeks at St. Petersburg, Fla.

David Robertson, vice-president of Canadian Paperboard Company, Ltd., with headquarters at Montreal, was a caller on a section of the Toronto paper trade a few days ago.

C. E. French and Lou Stone of the Toronto staff of the Howard Smith Paper Mills, Ltd., were in Oshawa a few days ago at the invitation of the Watchman Press, exhibiting the company's films dealing with the manufacture of high grade papers and "Progress bond around the world." There was a good turn-out of members of the printing industry.

HOOKER CHEMICALS

..of the Highest Quality...

HOOKER ELECTROCHEMICAL CO

Every product, every process has originated in or passed thru our Research Department. We are justly proud of this painstaking care in development and production. It guarantees you Hooker Chemicals of the Highest Quality.

With plants conveniently located and our policy of carrying ample stocks of materials on hand at all times, we are prepared to make prompt and efficient deliveries to all sections of the country.

HOOKER CHEMICALS

Caustic Soda
Liquid Chlorine
Bleaching Powder
Muriatic Acid
Monochlorbenzene
Paradichlorbenzene
Benzoate of Soda
Benzoic Acid
Benzoyl Chloride
Benzyl Alcohol
Antimony Trichloride
Ferric Chloride
Sulphur Monochloride
Sulphur Dichloride
Sulphuryl Chloride
Salt

HOOKER ELECTROCHEMICAL CO.

EASTERN
Plant—Niagara Falls, N. Y.
Sales Office—25 Pine St., New York City

WESTERN
Plant—Tacoma, Washington
Sales Office—Tacoma, Washington

Philadelphia Paper Market Continues Irregular

Break In Kraft Paper Prices Is Adversely Affecting General Wrapping Paper Industry—Converted Products Into Which This Grade Enters Disturbed by Situation—Fine Paper Division Rules Fairly Steady, With Wholesale Orders Expanding.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 31, 1930.—Kraft prices continue to be revised downward. Another concession was made by the mills in the past week with prices off $5 per ton from the quotations that prevailed in the preceding week, when similar cuts were offered the dealers. This confusion in the kraft market has unsteadied the general wrapping paper business and distributors are warranted in holding off orders until there is assurance of steadiness for the future course of trading. There is a disastrous effect on converted products into which this grade of paper enters. Competition is keen as converters offer bags at prices lower than what they were produced for and in keeping with the reduced costs of manufacture. The present prices of bags and krafts are within the range of the lowest levels of post war years and in some grades below those of pre-war times.

Though distributors of fine paper are confronted with unusually trying sales conditions there is steadier value to the better grades that are moving in smaller volume. Wholesalers of fine paper report growing orders as the printers and publishers are taking advantage of the present market to stock more freely for future needs. Special lines adapted for springtime announcements are in demand among the consumers of large mail order papers in fancy shades or in unique finishes where a quality stock is desired and where the mercantile industries are seeking appropriate springtime announcements. Cover papers are also in request. There is a growing demand for social stationery and for the better grades of writing paper but the cheaper types of all lines of paper are less active. Specialties of the seasonally active grades are in demand and the better classes of bags hold steady. Such products as cellophane and their combinations in paper are most active and those manufacturers catering to consumers of such products are reported to be unusually busy. Manufacturers of glassines report a growing request but competition is keen. Builders supplies are active with manufacturers operating at full time schedule.

Considine Talks to Paper and Twine Merchants

Paper and twine merchants engaged in the local paper industry as mill representatives or trading in wholesale volume, were much enthused over the interesting and educational talk given by the vice president of the Philadelphia Paper Trade Association and president of the Paper House of Pennsylvania, Norbert A. Considine, who addressed the group enrolled in the membership of the Paper and Twine Merchants Association at the meeting held last Friday at the Adelphia Hotel. Vice President Considine dwelt upon the details of merchandising of paper, going at length into the factors of costs and conduct of business, stressing the importance of careful consideration of present day needs for economy and the concentration on modern methods of marketing with constant application to research for new sources of consumption. He also gave an enlightening talk on the marketing of twines along the same lines.

Following his talk on trade topics, Vice President Considine on behalf of the Philadelphia Paper Trade Association, invited the members of the Paper and Twine Association to join the Paper Trade Association. There recently was adopted a resolution by the Philadelphia Paper Trade Association for a change in the By Laws of the organization which would permit dealers in twine exclusively to become members of the older body and the changes to be effected were placed under a committee of Simon Walter and Charles A. Wilder, of the Wrapping Paper Division, for revision and submission to the members of the Philadelphia Paper Trade Association for action at the quarterly meeting to be held in late April. This will permit the twine distributors and dealers to join the long established local organization.

At the meeting held in the Adelphia Hotel, President George K. Hooper, of the Hooper Paper and Twine Company, head of the Paper and Twine Merchants Association, presided. The members joined in the monthly luncheon session with almost one hundred per cent attendance. At this meeting there was considered the application of R. Peel Bentley, head of the Bentley Paper Company, Public Ledger Building, who is to be admitted to membership in the organization. The Paper and Twine Merchants Association now has enrolled in its ranks the majority of mill representatives and wholesale paper dealers in this city and has been active in increasing its membership in the current year.

Coffee Bag Manufacturers Sold by Receivers

Papers, bags, printing presses, and other plant equipment and furnishings of the Frank A. Rolling Company, 308 Cumberland street, were sold under the hammer by the auctioneers, Samuel T. Freeman & Co., for the receivers of the firm under bankruptcy proceedings, on March 28. The sale comprised the 200,000 plain and printed coffee bags, large quantity of paper stocks, Miehle printing presses, folders, cylinder and embossing presses, a large number of automatic bag making machines, paper cutters, power folders, engine lathes, generators and other assets of the company The company was engaged in the manufacture of paper and cloth coffee sacks and bags and was an old established concern.

Stock of Harvey E. Platt Goes to Son

The stock of the late Harvey E. Platt, former president of the J. L. N. Smythe Company, 30 South 6th street, who passed away last February, from an attack of pneumonia, was disposed of by the will of the former official of the company to his son and associate in the business, Harvey Ellmore Platt, Jr. The will disposed of an estate valued at $100,000 and upward, including the stock in the J. L. N. Smythe Company, all of which is left to the son. In addition to the stock in the Smythe company the son receives two-thirds of the remainder of the estate, the balance going to the widow of the late president, Mrs. Margaret A. Platt, with reversion to the younger Platt at her death. The Smythe company is one of the oldest and largest of wrapping paper and specialty paper houses in this section, with its branch extending to Australia.

Thomas W. Price Co. to Admit Girls to Vici Club

Girl employees of the Thomas W. Price Company, 503 Ludlow street, will be admitted to membership in the long established welfare organization of the firm—the Vici Club—which heretofore has been a stag affair. Under the innovation in the membership the girls will unite with the men in all the social and welfare functions of the organization and will schedule a series of dances and other pastimes to conform with the club's new policy. There will be more than eighty members of the firm's staff in the club when the fair sex are permitted to join. The first of the social functions to be held under the united efforts of the staff is the annual outing later in the springtime. Thomas R. Fort, Jr., president of the company, is at Atlantic City for a brief holiday and rest.

Charles McDowell Returns From Florida

Charles McDowell, head of the McDowell Paper Mills, who has been sojourning in the south on a cruise along the coast of Florida in the yacht owned by Charles Eisenlohr, retired millionaire cigar

A RECORD OF SERVICE

THE name and reputation of National Aniline & Chemical Company, Inc., carry with them an assurance as to the quality of its products. Those who know the record of service, the technical resources, the years of research and experience which stand behind this company know that the paper industry can look to National for continued cooperation and dependable service.

We are always glad to cooperate with paper manufacturers in solving their color problems. Our well-equipped laboratories are at your command. Our ample warehouse stocks in each of our branch offices insure prompt delivery. Do not hesitate to call upon us to serve you.

NATIONAL DYES

NATIONAL ANILINE & CHEMICAL CO., Inc.

40 Rector Street **New York, N. Y.**

Boston Providence Chicago
Charlotte Toronto Philadelphia
San Francisco

manufacturer, has returned to his desk at the mills. While in the southern resorts he was greeted by Henry W. Stokes, head of the York Haven Paper Company, of York, Pa., and former president of the American Pulp and Paper Association, and Samuel A. Upham, of the Brownville Paper Company, New York. The McDowell Paper Mills are now operating on full time, with orders for glassines increasing. The McDowell Mills, although more than a century old, are modern in equipment, recent installation of electrical appliances and power units having brought them up-to-date.

Surveys Wrapping Paper and Box Consumption

Under the survey undertaken by the National Retail Dry Goods Association there may be a 10 per cent decrease in the packing and wrapping costs of merchandise resulting in a saving of $9,000,000 per year to department stores of the United States, according to an announcement made in the Bulletin issued by the local headquarters of the National Paper Box Manufacturers. This survey will have the co-operation of Secretary R. P. Lamont, of the Department of Commerce, through the Division of Simplified Practice of the Bureau of Standards, which will confine its activities in the survey to an examination of specifications for supplies and methods of using such supplies. The first step of the investigation now being made here among the members of the National Retail Dry Goods Association, including the large department stores of the city, covers only major wrapping and packing supply materials, such as boxes, folding and set-up gift boxes, corrugated boxes and wraps, and in the paper lines, wrapping paper, bags, tissue paper, twine, and gummed tapes.

A Richens With Thomas M. Royal & Co.

An announcement was sent to the trade last week by A. Richens, formerly manager of the John M. Driver Company, stating that he is now associated with Thomas M. Royal & Co., bag manufacturers, of 7th and Grange streets. John M. Driver is also attached to the staff of the Royal company as plant superintendent.

Wholesale Paper Stock Merchants Silver Jubilee

Memories of yester years interwoven with the happy spirit of a grand and impressive celebration replete with a diversified program that illuminated one of the most cordial gatherings ever held by the paper stock merchants of the Philadelphia industry, rounded the 25th milestone of the history of the Wholesale Waste Merchants Association of Philadelphia, when the Silver Jubilee gathering of last Wednesday evening at the Bellevue Stratford Hotel brought together two hundred trade associates of this city and distant points. From the moment President Thomas A. Kenny sounded the taps of a silver bell that brought the attention of the revelers to the main table and gave him the pleasure of presenting, as master of ceremonies, the honored guests of the occasion, the first vice president of the parent organization—the former Philadelphia Paper Stock Dealers Association—and introduced Jefferson I. Lenhart, and the first vice president, Edward Hemingway, to the members and their friends from out of town, until the last echo of the "good night" of the orchestra in the rendition of "Home, Sweet Home," there was one continuous performance of pleasing diversions with a delicious and especially appealing menu that was followed by twelve acts of vaudeville of really worthwhile entertainment.

This year the association went to extra expense and effort to provide in its annual banquet a brilliant program which would be in keeping with the Jubilee celebration. Seated at the honored guests' table were President Thomas A. Kenny, of the organization, and of the International Trading Company; President Bert Lorenz, of the New York Association of Dealers in Paper Stock; President John Bluestone, of the Pittsburgh Association of Paper Stock Dealers; President Charles J. McNichol of the local body, and of P. Sante Company; Treasurer William L. Simmon, of the Philadelphia Association, and of the firm of John Simmon's Sons; Secretary William J. McGarity, Jr., of the local organization and his father, William J. McGarity, Sr., of the Penn Paper and Stock Company; Jefferson I. Lenhart; Edward Hemingway; and Directors Morris Harris, H. Feldman & Co.; William Lemly and Samuel Ingber.

Jefferson I. Lenhart was lauded as the first president of the old Philadelphia Paper Stock Dealers Association and Edward Hemingway as the first vice president, both active in the founding of the association 25 years ago and when they were called on for a word of the days of old they brought happy recollections to those who in the many years of the past have mingled with their fellows in these annual feasts and in the many organization activities which have brought such cordial relationship between the members and in the trade as a whole. Mr. Lenhart harkened back to 1905 when the old association was formed and told of the trade factors that led to the gathering of the trade in united effort to bring about social contact of the members and to promote the interest of all.

Mr. Hemingway gave an account of the early days of the industry, its times when less effort was required to earn a dollar and smaller volume of paper stock that was moved in the city and growing demands of the mills as the years broadened until the industry shipped ton after ton of paper stocks and rags as paper making became an outstanding commercial enterprise in the country. He gave an account of the founding of his father's business before the Civil War when the Hemingway Paper Stock Company was organized by William Hemingway and which eventually passed into his own hands and still continues to conduct business under Harry F. Bailey with his retirement from the trade. Mr. Hemingway came all the way from Maine, where he now lives, to join with his associates in this Silver Jubilee.

President Kenny told of the present Wholesale Waste Merchants Association and its enrollment of 35 of the most prominent houses connected with all branches of the waste trade and the progress which had been made in welfare of the industry under its guidance.

Then there was much enthusiasm as the drawing of thirty prizes was made with valuable gifts given to the lucky winners whose numbers were drawn from the hat by one of the talented dancers in the professional list. Dr. Hiram Webb added to the jollification as an humorist who was introduced with great solemnity by President Kenny and who was given the title of "Paper Stockologist" by William J. McGarity, Sr., in mirthfulness over his unique business talks that were all placed before the members with clever witticism that cleared away the cut and dried talk that might otherwise have been given on business problems. As the banquet and Jubilee closed there were treasured by the members the programs which were most appropriately designed in silver covers bearing the years of the organization and containing the anniversary celebration committee of the following members: William L. Simmons, William J. McGarity, Jr., Thomas A. Kenny and Charles McNichol, who arranged the program.

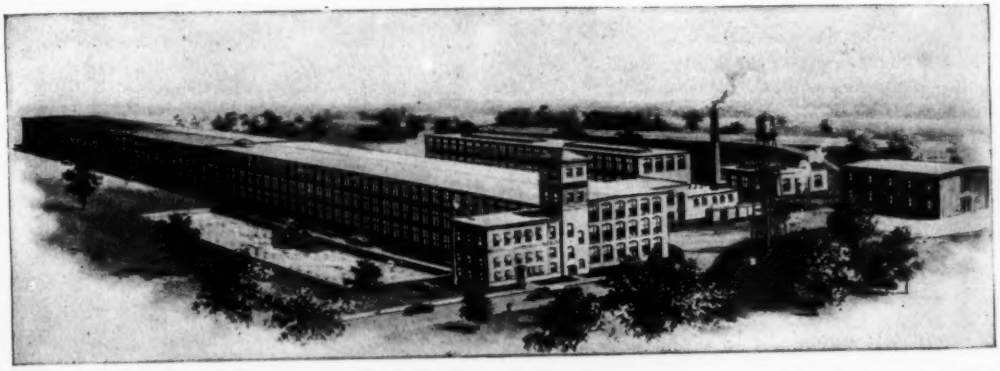
H. Wesley Guldin in Bankruptcy

H. Wesley Guldin, trading as Guldin's Wholesale Paper House of Pottstown, Pa., was involved in voluntary bankruptcy proceedings in the U. S. District Court last week. Liabilities are $6,342 and assets $6,673.

E. J. Walker Goes With Whiting Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., April 1, 1930.—Elijah C. Walker for the past 14 years sales manager for the Collins Manufacturing Company of this city (mill in North Wilbraham) has resigned his position to take a similar position with the Whiting Paper Company of this city. He will begin his new duties today. Mr. Walker has had a wide experience in paper manufacturing and sales and is well known over a large territory.



THE HOME OF ALBANY FELTS

• • • WHY IS IT POSSIBLE

for Albany to produce BETTER and BETTER FELTS year after year?

Constantly Better

THE FIRST FACTOR is designing... minute attention to analyzing the requirements before a single inch is woven. The result is not a standard felt "doctored up" to approximate the needs, but an individual design developed for an individual position.

THE SECOND FACTOR is wool. Albany is more than particular in selecting the proper qualities and has its wool buyers searching the markets of the world to meet the Designing Department's exacting specifications.

THE THIRD FACTOR is the blending of the wool and the spinning. Nowhere are scientific methods and control more important. It is astonishing to see the improvement which often comes from giving this factor painstaking care.

THE FOURTH FACTOR is the weave. Porosity, finish, strength—all must be taken into consideration, and the right weave selected to do the work properly.

THE FIFTH FACTOR is finishing. Experienced and capable finishers with years of training give the felt the final touch so necessary for its success.

Paper
Machine
Felts and Jackets
Tailor-made
from the World's
Choicest Wools

Albany NEVER LETS UP—always seeking improvements through research, better machinery, modern methods. That is why ALBANY FELTS are leaders in their field, steadily growing in favor—

by

Albany Felt Company

ALBANY, N. Y.

Constantly Better

Fraser Ltd., Use Interesting Conveying System

At the Edmundston, N. B., pulp mill of Fraser Companies, Ltd., may be seen a particularly modern and efficient method of conveying pulpwood from the river to their Thorne barkers, and from the barkers to the wood room or storage pile.

Embodying some innovations in the handling of this class of materials, it may not be amiss to show a few pictures of these conveyors, and to describe the system briefly.

In Figs. 1 and 2 are shown the three inclined log haul-up conveyors, each operating in a separate trough, for conveying the logs endwise, up from the river to the three long horizontal transfer conveyors, seen in Figs. 3 and 4.

The log haul-ups each employ a single strand conveying medium of Link-Belt combination malleable iron and steel "C" class chain, made up with "S" spur steel side-bar attachments at suitable intervals, to keep the logs from sliding back. The transfer conveyors each employ two strands of this chain side by side, but, as they operate horizontally, the spur pushers (or retarders) are not required, and therefore have been omitted.

The transfer conveyors are better shown in Fig. 4, as is one of the special transfer wheels at end of one, for transferring the logs from an endwise conveyance to crosswise carrier. There are three of these crosswise carriers, or feeder conveyors, as shown in Fig. 5, for feeding the logs to the barkers for de-barking, each feeder conveyor receiving the discharge of one of the three horizontal transfer conveyors.

The transfer wheels are rather interesting. They run at a higher peripheral speed than the transfer conveyor line speed, and thus we

(*Continued on page 58*)

FIG. 5

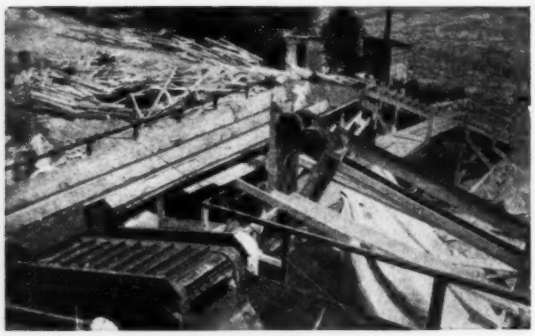


FIG. 3

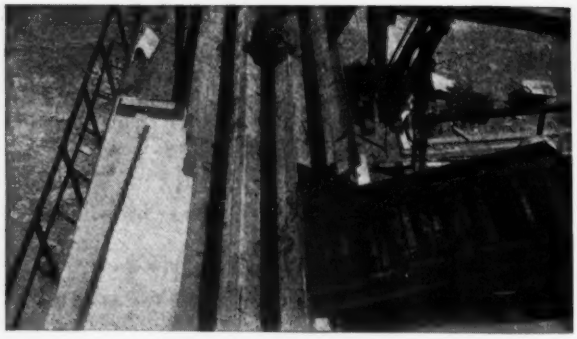


FIG. 4

FIG. 1

FIG. 2

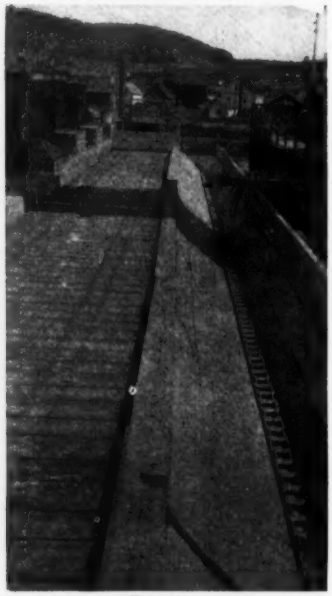


FIG. 6

for 16 mills clean paper

DESIGNED AND BUILT BY CENTRIFUGAL SPECIALISTS

Tolhurst Centrifugals for the purification of paper pulp are manufactured under license from the Centrifugal Engineering & Patents Corp., owners of the Erkensator Patents.

Already, 16 mills have said goodbye forever to slimy, time-wasting sand-traps and rifflers. They have installed, or are now installing, Tolhurst Centrifugals—71 of them so far.

Are they successful? So successful that from these 16 mills we have received seven repeat orders!

Our new bulletin, printed on paper that will interest you, tells how the Tolhurst Centrifugal makes paper clean and increases average selling prices. The coupon will bring you your copy.

TOLHURST
REGISTERED U.S. PAT. OFF.
Centrifugals

New York Office: 30 Church St. *Chicago Office: 8 So. Dearborn St.*

TOLHURST MACHINE WORKS, INC., 653 W. Fulton Street, Troy, N. Y.
Gentlemen:— Please send me your latest Tolhurst Centrifugal Bulletin, printed on Centrifugally treated stock.

Name..... Position .....

Mill..... Address .....

fll 3887

Obituary

Harry Price

APPLETON, Wis., March 31, 1930—Kimberly-Clark Corporation, Neenah, Wis., mourns the loss of one of its principal officials in the sudden death at Orlando, Fla., on Thursday, March 26, of Harry Price, secretary and treasurer. A heart attack brought the unexpected end, while Mr. Price was enjoying several months of rest at the southern city.

Mr. Price was 56 years old. He came to Neenah from Baltimore 21 years ago to join the Kimberly-Clark organization, engaging as an accountant and auditor. He reorganized the accounting system of the company and his ability was given recognition in 1916 when he was elected secretary of the company.

Other business connections included the presidency of the Kimlark Rug Corporation, whose owners are mainly officials of the Kimberly-Clark Corporation, and he also was secretary and treasurer of the International Cellucotton Products Corporation, of Neenah. He was a trustee of the Fond du Lac Diocese of the Episcopal church, a trustee of Grafton Hall, an Episcopal school, and secretary of the board of directors of Theda Clark hospital, Neenah, Wis. He had been a liberal giver to the Episcopal church and charities.

Ill health overtook Mr. Price several years ago, but his sudden end was not expected. His body was conveyed to Neenah for burial. Several Kimberly-Clark officials who were at other southern points for winter vacations returned home immediately to attend the funeral.

Benjamin Wolf

PHILADELPHIA, Pa., March 31, 1930—Benjamin Wolf, widely known investment banker and manufacturer of paper products in converted form, passed away at his home here last week after a brief illness. He was 68 years of age. He was the founder of the printing business of Wolf Brothers, which later became a paper manufacturing concern engaged in the production of envelopes, paper boxes, bags and paper. The business is still continued in a large way at 13th and Callohill streets. The deceased also founded the National Metal Edge Box Company, also located in the large structure devoted to Wolf Brothers business at this address. He was one of the organizers and directors of the Hercules Cement Company and in a number of corporations. Mr. Wolf also founded 30 years ago, with his brothers Edwin, Clarence, Louis and Albert, the banking business of Wolf Brothers & Co., 213 south Broad street. During the adminstration of Governors Tener and Brumbaugh, he was Colonel on the Governor's Staff. He was in recent years devoted to many philanthropies. He was born and educated in Philadelphia and was the son of Elias and Amelia Wolf. Mr. Wolf was a Trustee of the Free Library, of Philadelphia, and belonged to the Manufacturers Club, Philmont Country Club, Mercantile and Locusts Clubs. In addition to his brothers, he is survived by his widow Mrs. Fedora Wolf, and two sisters.

William Gage Snow

SPRINGFIELD, Mass., March 26, 1930—William G. Snow, who was president and treasurer of the Middlesex Products Company, died suddenly February 14, after a short illness which was not considered serious.

William Gage Snow was born in Watertown, Mass., February 15, 1866. He graduated from the Massachusetts Institute of Technology in the class of 1888. From that time until taking the office of treasurer of the Middlesex Products Company in 1918, he was engaged in the engineering profession, specializing in heating and ventilating, in which line he was a recognized authority. At various times he gave courses in heating and ventilating engineering at the University of Pennsylvania and at the Massachusetts Institute of Technology; and was the author of a number of books on the subject.

As treasurer and general manager of the Middlesex Products Company, he built up the financial position of the concern, modernized its mill equipment, reorganized the sales organization and greatly enhanced the reputation of the company. His firm has been a member of the Glazed and Fancy Paper Manufacturers Association for a number of years, during which time Mr. Snow acted as the concern's representative. He always took an active interest in the work of the association, regularly attended its meetings, was a member of the executive committee and other important committees. Outside of business he was a vestryman of Trinity Church, Newton Centre, and a member of various clubs and engineering organizations.

He is survived by his widow, two married daughters, and William Bradlee Snow, his son, who has been elected treasurer of the Middlesex Products Company.

Paper Demand in Indianapolis Slow

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., March 31, 1930—Little change is seen in the paper sales volume here. Three days during a blizzard last week business of all kinds virtually was at a standstill. Some inquiries are being received for different grades, but orders are slow in being signed. Some contracts are being signed, but the buyers are very wary of contract business and generally have studied the situation very closely before making contracts.

In view of the price situation, buyers of kraft are very cautious. Some price concessions during the last month have caused the buyers to believe there will be further cuts and they are holding off orders just now waiting for those problematical cuts. Dealers in specialties, particularly in cellophane and waxed papers appear to have the best of the bargain. The demand for such papers is increasing gradually as more and more uses for them are devised. The coming of the sliced loaf of bread, which is usual now throughout the state, has caused a big increase in waxed papers and the adoption by two large cigar manufacturers of cellophane paper for wrapping their cigars has created a new market for this grade. And more and more uses for these two papers are being found by local manufacturers all the time.

The approach of Easter has given an impetus to the better grade specialty papers. Several of the larger stores are planning direct by mail campaigns before Easter and this is creating a good demand for high grade papers just now. It is probable this demand will be better than it was last year.

Building papers have slumped in demand, largely because of the lateness of the season and the fact that most of the dealers are fairly well stocked. Given good weather it will be at least a month before there is any appreciable demand for building papers.

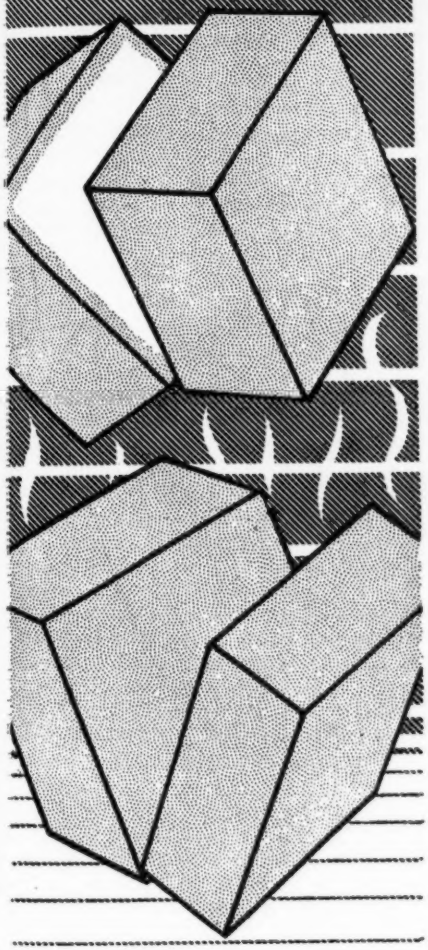
Paper stock business is only fair. Local stock men say prices have been reduced and there is no easy money in making sales. Mostly they are holding their stocks waiting for higher prices.

New Ingersoll-Rand Booklet Issued

Ingersoll-Rand Products for the Pulp and Paper Mill are described in a comprehensive manner in a new booklet just issued. Chapters are devoted to Cameron Pumps, Air Compressors, Pneumatic Tools, Paving Breakers, "Jackhamer" Drills, Surface Condensors, The Minton Vacuum Dryer, Vacuum Pumps, Oil Engines, Horizontal Units, Compressors, Oil-Electric Locomotives, Portable Air Compressors and Miscellaneous Applications. Many valuable illustrations and statistical tables are used to demonstrate the value and usefulness of the various products. Copies of the booklet may be obtained by addressing the Ingersoll-Rand Company at their office, 11 Broadway New York.

PENETRATION

BRINGS YOU INCREASED PROFIT AND PRODUCTION



An inquiring chemist took two six-inch cubes of spruce . . . placed them in similar containers . . . subjected them to sulphurous acid under identical pressure.

The sole difference was in temperature . . . the acid in one container was at 60°F,—170°F in the other.

At the end of a half hour the cold acid had penetrated its cube one-quarter of an inch,—*the hot acid had penetrated its cube to the center!*

And that, basically, is the reason for the remarkable increase in production and profit effected by the CHEMIPULP PROCESS.*

Sulphurous acid is introduced into the digesters at an initial average temperature of 170°F . . .

Cooking and penetration start *immediately!* . . . the equivalent of two and one-half hours increased cooking time is obtained in the same cycle now employed, or the cycle can be shortened two and one-half hours and the same or better quality be obtained, saving fuel and steam and increasing digester yield . . .

Chips are uniformly penetrated . . . better conditioned . . . without regard to their position in the digester . . .

The quality of the cooked pulp is much higher, with a considerable reduction in screenings and a high increase in strength and folding tests in the finished paper . . .

And this will interest you . . . economies and increased production *pay for the system in twelve to eighteen months!* We'll be glad to show you facts and figures.

CHEMIPULP PROCESS, INC.

CHEMICAL PULP MILL ENGINEERS

WOOLWORTH BLDG.
Pacific Coast Office, 1017 White Bldg., Seattle, Wash.

WATERTOWN, N. Y.
Canadian Agency, 319 Castle Bldg., Montreal, Que.

*THE CHEMIPULP PROCESS—a revolutionary process for the recovery of hot SO_2 gas and liquor and its efficient re-utilization through the digesting system *under high initial temperature and pressure.*

New York Trade Jottings

Harry Beach, of Dard Hunter's Paper Mill, Limerock, Conn., is a New York visitor this week. Mr. Beach reports good progress at the new plant.

* * *

Atterbury Bros., Inc., well known pulp importers, have removed from the 9th floor of 110 East 42nd street, New York, to larger and more convenent quarters on the 16th floor.

* * *

Seventeen hundred and thirty-six New York City plants have enlisted in the Greater New York Industrial Safety Contest, sponsored by the Merchants' Association and other trade and commercial organizations.

* * *

W. H. Millspaugh, who recently disposed of his interests in the Paper and Textile Machinery Company, of Sandusky, Ohio, of which he was president and general manager, sailed for Southampton aboard the Cunard liner *Berengaria* last Monday, accompanied by his daughter. Mr. Millspaugh plans to visit practically every quarter of the globe before returning to this country.

* * *

Andrew Gasparinetti, a representative of the Miliani Mill at Fabriano, Italy, a paper mill which has been in contiuous operation since the 13th century, is now in New York City. Mr. Gasparinetti, with George A. Nelson, vice president of the Japan Paper Company, is visiting many of the consumers of fine Italian hand made papers in New York City, and will later visit the Boston and Philadelphia branches of the Japan Paper Company for the purpose of calling on users of Fabriano papers in those cities.

J. B. Peters Addresses Paper Salesmen

Jack P. Peters, of Dorrance, Sullivan & Co., New York, was the guest speaker at the regular weekly luncheon and meeting of the New York Division of the Salesmen's Association of the Paper Industry, held last Monday at the Fraternities Club. There was a good attenadnce of members and guests.

"Present Status and Future Trends of Magazine Advertising" were discussed by Mr. Peters in a convincing manner. He said that from an analysis of 86 national magazines it was found that advertising for the first quarter of 1930 approximated 93 per cent of the normal trend.

Mr. Peters stated that the value of advertising in these magazines for the year 1929 was $209,000,000. Following the trend for several years past he declared that the value of advertising in 1930 should reach $215,000,000. Taking into account the prevailing business depression, however, he expressed the opinion that the total volume of advertising for the current year would approximate $210,000,000, which would still be a new record.

Boston Paper Market Fairly Steady

BOSTON, Mass., March 31, 1930—Wholesale paper dealers generally are receiving an average amount of orders. Some of the fine paper houses report a good business, while others say that it is no better than fair. The volume of orders, it is estimated, has not declined any from the week before. The kraft market is understood to be considerably disturbed by lower prices, particularly in No. 2 grade, which is now quotable in this market at .03½ to .04½, f. o. b. mill, compared with a previous range of .03¾ to .05. The specialty market is reported good.

During the last month the box board market has improved and it continues to hold its ground. Quotations continue at the same levels. Dullness in paper stock continues with declines in some cases. Old newspapers are quotable at .40 to .45, f. o. b. Boston, compared with .45 to .50 a week ago, and foreign manila rope at 4.00 f. o. b., Boston, compared with 4.25.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 31, 1930.—Arthur E. Blackman, president of the D. F. Munroe Company, and first vice president of the National Paper Trade Association in charge of the Wrapping Paper Division, has returned from a trip to various cities on which he was accompanied by Frank Floyd, general secretary of that association. The object of the trip was to outline at association meetings the aims and policies of the National Paper Trade Association. Mr. Blackman first went to New York, was joined by Mr. Floyd, and they went later to Washington, D. C. A meeting was held there March 20 at the Hotel Raleigh, attended by about 25 members of the Baltimore and Southern Paper Trade Association. At Richmond an all day session was held March 22 at the John Marshall Hotel, where members of the Virginia and Carolina Paper Trade Association assembled, with their salesmen and accountants, making about 125 present. In Memphis a meeting was held March 25 at the Hotel Peabody, with about 75 present. As a result of the Memphis meeting four houses which had not been members joined the association in that city. While in Memphis, Messrs. Blackman and Floyd called on all the paper houses and went into conference with the managers and head accountants, explaining the principles and working details of net profit control. In Cincinnati all day and evening meetings were held March 27 with the Central States Paper Trade Association at the Hotel Sinton.

William P. Brown, who had been with the Carter Rice & Co. Corp. for 34 years, has taken a position as salesman with the Globe Paper Company, covering the territory in Boston and vicinity.

Lee H. Hulett, sales manager of the Chemical Paper Manufacturing Company, Holyoke, Mass., accompanied by Walker Holmes, a salesman for this company, called on the local paper merchants last week.

George Goodsir, vice president and sales manager of the Mid-States Gummed Paper Company, of Chicago, and Mr. Fogelstrom, executive secretary of that company called on the trade last week.

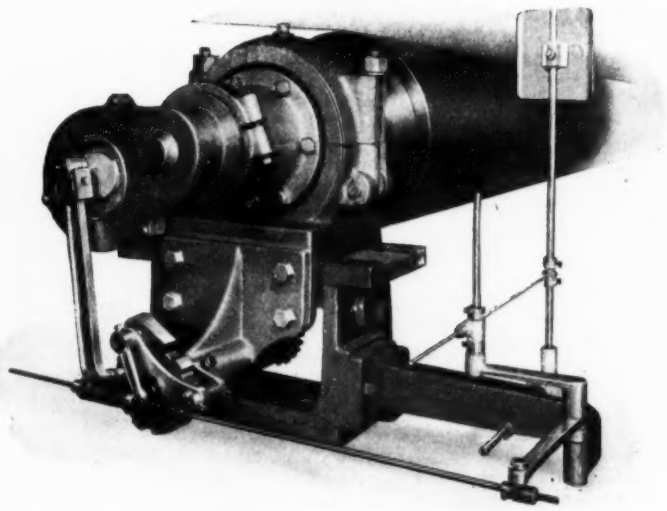
Paper Association Elects Officers

There was an excellent attendance at the annual meeting of The Paper Association of New York City, which was held at the Arkwright Club, 320 Broadway, last Thursday, March 27. Rudolph L. Walton, of D. S. Walton & Co., was elected president for the ensuing term. Oswald F. Marquardt, of Marquardt, Blake & Decker was reelected vice president in charge of the Fine Paper Division. James F. Levins, of George W. Millar & Co., was elected vice-president in charge of the Wrapping Paper Division.

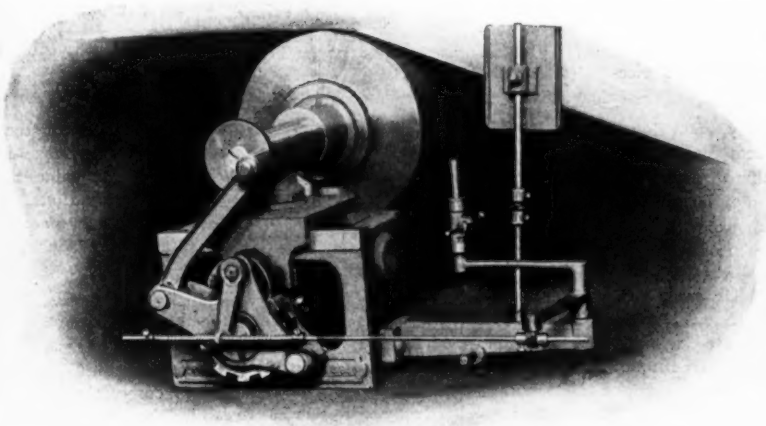
Other officers of the association are: Treasurer, H. B. Thurston, of Conrow Bros., and Secretary, Irwin Slote, of 41 Park Row, New York. Directors Fine Paper Division—J. Harry Londergen, Henry Lindenmeyr & Sons; Max Greenbaum, Beekman Paper and Card Company; George McKinney, F. A. Flinn, Inc.; Clarence H. Biddulph, Richard C. Loesch Company, Bertram E. Linde, J. E. Linde Paper Company; Robert Schmidt, Miller & Wright Paper Company. Directors Wrapping Paper Division—George W. T. Skinner, Skinner & Co.; Richard Bauer, Richard Bauer & Co.; Alfred McGrane, D. P. Winne Company; Richard C. Kettles, Charles F. Hubbs & Co.; William E. Ebbets, Coy, Disbrow & Co.; Elwin Walker, Walker-Goulard-Plehn Company.

Directly following the annual meeting the Sports and Pastimes Committee entertained paper distributors, manufacturers, employees and other guests to an excellent dinner and entertainment. The program was very diversified and included a bevy of charming and talented vocalists and dancers of the fair sex, many clever comedians, a three round boxing match, and last but by no means least an unusually peppy orchestra. The program was appreciated by the gathering which showed its pleasure by demanding numerous recalls.

M. & W. Single Fender Patented Automatic Wire Guides



BALL BEARING TYPE



PLAIN BEARING TYPE

Note from the illustrations that the pawl when engaged in teeth of ratchet wheel, has a full bearing surface, eliminating wear, also the purchase of many expensive ratchet wheels and pawls.

When the wire is running in the center of machine the pawl cannot transmit any motion to the guide roll. Should the wire travel to the other side of the machine, the positive and quick action of the pawl would immediately cause the Wire Guide to properly align the wire.

The Single Fender feature on these Guides increases the life of the wires considerably, as only a very slight contact between the fender and wire is sufficient to operate the Wire Guide when necessary.

The single fender Guides are more convenient, especially when putting on new wires.

Bulletins on request

THE MOORE & WHITE CO., NORTH PHILA. STATION PHILADELPHIA, PA.

PAPER · MACHINE · BUILDERS

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Plainwell, Mich.—The Michigan Paper Company, Plainwell, has plans under way for extensions and improvements in power plant at local mill, including installation of aditional equipment for increased capacity. The work is reported to cost over $250,000, with machinery, and will be placed in progress at an early date. C. F. Hirschfield, 2000 Second Avenue, Detroit, is consulting engineer. George W. Gilkey is president and general manager.

Canton, Ohio—The Cleveland Corrugated Box Company, 5305 Sweeney avenue, Cleveland, Ohio, manufacturer of corrugated paper boxes and containers, has concluded negotiations for the purchase of the mill and business of the Canton Fibre Box Company, Canton, manufacturer of similar specialties, and will take immediate possession. The purchasing company will use the property as a branch mill, continuing production of products regularly produced at the Cleveland mill, and will operate under the name of the Canton Corrugated Box Company. It is understood that increased capacity will be developed. A. R. Havighurst is president of the purchasing company, and J. C. Andrews, secretary and treasurer.

Ogdensburg, N. Y.—The Algonquin Pulp and Paper Company, Inc., has been organized with a capital of 15,000 shares of stock, no par value, to take over and succeed to the Algonquin Paper Corporation, with local newsprint and sulphite pulp mill. The new company will arrange for increased operations. It is headed by Frank A. Augsbury and Clarence S. Cook, both identified heretofore with the former organization, as president and vice-president, respectively.

Los Angeles, Cal.—The Pioneer Paper Company, 5500 South Alameda street, has awarded a number of contracts for work in connection with its proposed new mill unit, consisting of a two and three-story addition, 50 x 100 feet, to be used primarily for emulsion service. Award for structural steel framing and elevator has been let to the Consolidated Steel Corporation, Los Angeles; for rock and sand to the Consolidated Rock Products Corporation, Los Angeles; reinforcing steel to the Blue Diamond Company, Los Angeles; and for steel sash to the Detroit Steel Products Company, Detroit, Mich. The extension is reported to cost over $75,000, with equipment, Hamm, Grant & Bruner, Inc., Ferguson Building is architect and engineer, and will supervise construction.

Sioux City, Iowa—The Maizewood Products Company, 209 South State street, Chicago, Ill., manufacturer of wallboard products, using cornstalks as raw material, is reported to be considering the construction of a new plant unit at Sioux City, consisting of several one-story units, reported to cost in excess of $400,000, with machinery. The project is understood to be in a preliminary stage.

Philadelphia, Pa.—The Philadelphia Paper Tube Corporation, care of Mrs. Mary Wilkinson, 2044 Conlyn street, Philadelphia, recently organized with a capital of 10,000 shares of stock, no par value, is said to be planning the early operation of a local plant for the manufacture of paper tubes, paper boxes and kindred products. The new company is headed by George W. Wilkins, Lansdowne, Pa.; Charles E. and Mary Wilkinson, address noted above. Mrs. Wilkinson will be treasurer of the new organization.

Niagara Falls, N. Y.—The Kimberly-Clark Corporation, Packard Road, has awarded a general contract without competition to Wright & Kremers, Inc., Main street and Pine avenue, Niagara Falls, for proposed new addition to local paper mill, consisting of a five-story unit, 85 x 200 feet, to cost about $200,000, with equipment. Work will be placed under way at once and structure made ready for occupancy at the earliest date. Headquarters of the company are at Neenah, Wis.

Old Hickory, Tenn.—The DuPont Cellophane Company, Inc., River Road, Buffalo, N. Y., manufacturer of special transparent paper stocks is said to be considering enlargements in its new mill recently constructed at Old Hickory, to develop large increase in present capactity. Estimates of cost and details will be arranged in the near future. The company is a subsidiary of E. I. DuPont DeNemours & Company, DuPont Building, Wilmington, Del., and engineering department of last noted organization will be in charge of project.

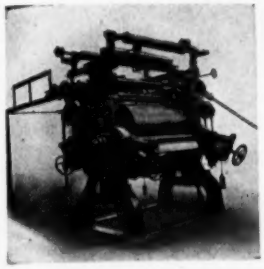
New York, N. Y.—The Unique-Travin Corporation, care of David Helfant, 3750 Bay Parkway, Brooklyn, N. Y., recently organized by Mr. Helfant and associates with a capital of $20,000, is said to be planning the early operation of a local plant for the manufacture of paper boxes and containers. Samuel Travin, Jr., 376 Alabama Avenue, Brooklyn, will be one of the heads of the new organization.

Chicago Ill.,—The Container Corporation of America, Inc., 111 West Washington street, has authorized an increase in capital stock from 600,000 to 2,000,000 shares, no par value, the fund to be used in part for general expansion in operations, including the acquisition of other properties for the manufacture of paper and paperboard containers, etc. Walter P. Paepcke is president.

Parkersburg, W. Va.—The Viscose Company of America, Inc., Marcus Hook, Pa., has active construction under way on a new unit at its rayon mill at Parkersburg, for which general contract recently was awarded to J. P. Pettyjohn & Company, Lynchburg, Va., and will push the unit to completion. It is expected to be ready for service early in the fall, and will represent an investment of over $1,000,000, with equipment, Facilities will be provided for increase in rayon pulp supply.

Somerville, Mass.—The Agar Manufacturing Company, Clyde and Warwick streets, manufacturer of paper boxes and containers, has awarded a number of contracts for proposed new addition to its local mill, and will push the structure to completion. It will be one-story, 100 x 240 feet, estimated to cost about $80,000, with equipment. Chase & Gilbert, Inc., Park Square Building, Boston, has the general contract. Structural steel will be furnished by the Lehigh Structural Steel Company, 7 Water Street, Boston; electrical installation will be made by

NOTHING BETTER CAN BE SAID OF A PRODUCT THAN IT IS PROCESSED ON WALDRON MACHINES !



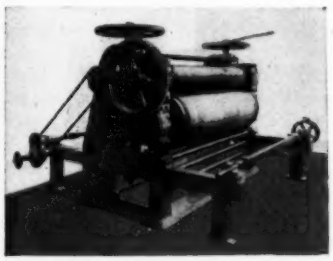
MULTI-TONE INTAGLIO PRINTING MACHINE
Produces most artistic multi-tone effects on linings, box papers and decorated wrapping papers with single color ink distribution. Made in one to eight colors.

Waldron Paper Roll Scientifically Built To Insure Long Life and Lower Roll Costs.

From the very inception of the paper converting industry, the name WALDRON has been closely associated with it. Waldron machines, in design and performance, have kept pace with the constant development of the industry. In many instances the advanced Waldron machine designs have superceded the development, making possible the improved processing operations and finish effects that are now so popular.

Select the papers of known character—printing papers, box papers, paper trims and specialties. You will find that Waldron machines have been selected for processing to insure the obviously superior quality that buyers and users so quickly recognize in these papers. The finish is only as good as the machine that must produce it.

SURFACE PRINTING MACHINE
Ideal for printing envelope linings and decorated wrapping papers. Accurate registration is assured by assembly of different block and color units around a single large impression cylinder. Made in one and up to 16 colors.



"CENTENNIAL EMBOSSING MACHINE"
Latest open front type with extra rugged frame. Split boxes for quick removal of rolls without removing entire box.

MECHANICAL FESTOONING FOR ECONOMICAL AIR DRYING
Designed for any type of building and for handling any kind of paper that is saturated or coated. Improves quality of finished product and insures perfect uniformity of color tints. Effects substantial saving in labor costs and floor space.

The Waldron engineering service can draw on a fund of experience in machine building extending over a hundred years, to give you the desired information on your processing problems. The benefit of such expensive experience is available from no other source. We invite you to consult us without obligation.

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519 American Bank Bldg.

WALDRON

Paper Converting Machinery

the Lord Electric Company, 303 Columbus Avenue, Boston; steel sash will be furnished by the Detroit Steel Products Company, Detroit, Mich., and 8 Chauncy Street, Boston. The new unit will provide considerable increase in present capacity.

Brooklyn, N. Y.—The plant of the Robert Graves Company, Third avenue, Brooklyn, manufacturer of wall papers, will be offered at a public auction on April 8, to liquidate the company. The property consists of a block front on Third avenue, extending from Thirty-fourth to Thirty-fifth street, with a total ground area of 69,600 square feet. The factory is a five-story, supplemented with a two-story storage and distributing building, and one-story stable.

Philadelphia, Pa.—The Purity Fibre Products Corporation, care of Edward C. Hessenbruch, Wynnewood, Pa., recently formed by Mr. Hessenbruch and associates, with capital of 1000 shares of stock, no par value, is said to be planning the early operation of a local plant for the manufacture of fibre and paper products of various kinds. Mr. Hessenbruch will be treasurer of the new company. A. C. Boyle, 1907 Packard Building, Philadelphia, is interested in the organization.

Vancouver, B. C.—The Pacific Mills, Ltd., Vancouver, is said to be arranging an immediate call for bids on general contract for its proposed new paper mill on local site, consisting of a two and one-half story main unit, reported to cost over $500,000, with machinery. W. G. Swan, Birks Building, Vancouver, is engineer, in charge.

New Companies, Etc.

Jersey City, N. J.—The New York Folding Box Company has been incorporated with a capital of $37,000, to manufacture folding boxes, cartons, etc. The incorporators are Morris Friedin and Harry Kaplan. The company will be represented by Atwood C. Wolf, 26 Journal Square, Jersey City, attorney.

New York, N. Y.—P. W. L. Paper Company, Bronx, has arranged for an increase in capital to 250 shares of stock, of which 100 are preferred, with $100 par value, or a total of $10,000, and 150 shares of common.

Utica, N. Y.—The Walrath-Boon Paper Company has been chartered with a capital of $50,000, to manufacture and deal in paper products of various kinds. The company will be represented by E. A. Jones, Utica, attorney.

Queens, N. Y.—The Fibreboard Holdings Corporation, Long Island City, has filed notice of company dissolution under state laws.

New York, N. Y.—The Union Bag and Paper Corporation, Third avenue, Long Island City, is arranging for a decrease in capital from $20,000,000 to $6,000,000, and the amount of issued capital stock from $14,980,936.36 to $4,494,280.91. The new capitalization of $6,000,000 will be divided into 200,000 shares of $30 par value each. C. B Sanders is secretary.

Paper Men in U. S. Chamber of Commerce

The American Paper and Pulp Association announces the following appointments to represent the paper industry in the work of the United States Chamber of Commerce:

National Councillor—L. M. Alexander, Nekoosa-Edwards Paper Co., Port Edwards, Wis.

Substitute National Councillor—M. E. Marcuse, Bedford Pulp and Paper Co., Richmond, Va.

Delegate—S. L. Wilson, American Writing Paper Co., Holyoke, Mass.

Substitute Delegate—Jesse H. Neal, American Paper and Pulp Association, New York, N. Y.

Both Mr. Alexander and Mr. Marcuse have long been interested in the affairs of the National Chamber. Mr. Wilson and Mr. Neal have taken part in the recent business conferences sponsored by the Chamber to carry out President Hoover's campaign to revive business.

Geo. W. Sisson Jr. on Conservation Committee

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., March 31, 1930.—George W. Sisson, Jr., president of the Racquette River Paper Company, Potsdam, and Dr. Richard Sykes, head of St. Lawrence University, are members of a committee on conservation appointed by the New York State Economic Congress as a part of its effort to check a general decline in the state's industrial fortunes, according to announcement here last week. Faced by the prospect of further critical decay of industrial and recreational structures based upon the state's forests business men and manufacturers are now planning an energetic program to restore the prosperity that forests first gave the state. Nelson C. Brown, acting dean of the Syracuse College of Forestry, has been named head of the committee.

Since 1912 New York State has lost 1,200 wood-working industries, according to Dean Brown, who claims that the great log drives and their by-products that employed thousands no longer exist. Transportation interests have suffered a heavy loss of trade as a result of the collapse of lumbering and nearly 5,000,000 acres of waste lands are contributing to boost taxes, he said. The dean, who is also a member of the state reforestation commission, pointed out that the forest preserve includes sixteen Adirondack and Catskill counties embracing an area as large as that of Massachusetts. Scientific forest administration as practiced in Europe and other states now makes possible the harnessing of this area, now wasted both to the economic and recreational interests of the state. The dean also predicted that with proper management the state could be restored to virtual independence of foreign wood supplies and its forest fed industries could be revived.

As an illustration of the critical situation which brought about the appointment of the committee Dean Brown ventured the opinion that in the event of an embargo by Canada on pulp supplies with the present dearth of domestic material even the common newspaper may cost as much as ten cents and then be greatly restricted in size and quality of news print. He also said that the pulp supply of many paper mills will be exhausted in a few years.

In connection with reforestation Governor Roosevelt in a proclamation issued this week said: "For many years the people of New York State have devoted one week to the consideration of the conservation of our natural resources. If the people are to derive the fullest benefits from the conservation of our natural resources they should actively participate in this work. All can assist in protecting our forests from fire by using care themselves and by instructing others. More than 25,000 people already are participating in planting forests and many more can assist in the work to their personal profit and the benefit of the state."

G. S. Witham Sr. Resigns as Bank Head

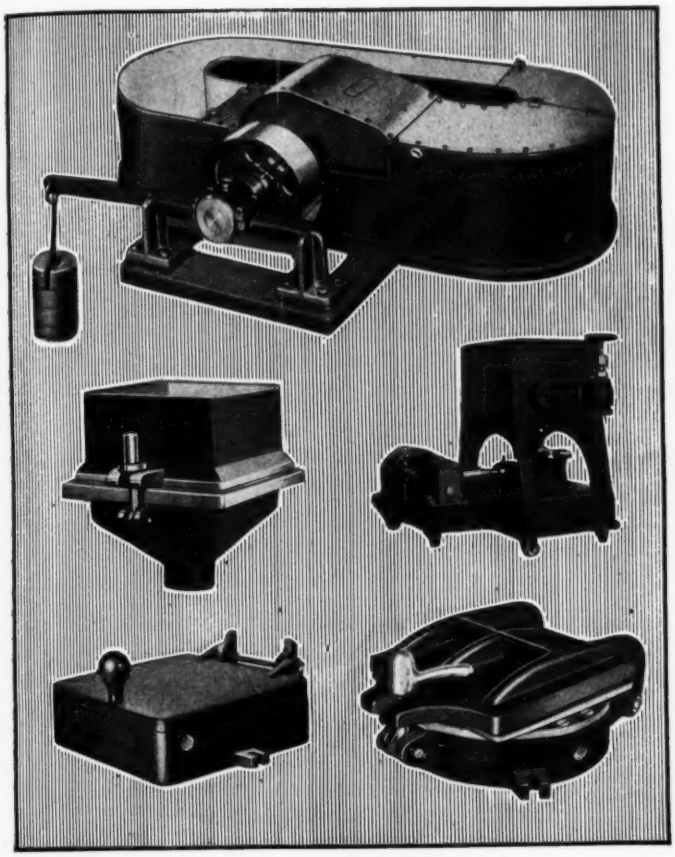
[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., March 31, 1930.—Announcement was made this week of the resignation of George S. Witham, Sr., as president of the Hudson Falls National Bank. The resignation was made because of his acceptance recently of a position as consultant engineer with the Hummel-Ross Fibre Corporation, Hopewell, Va. His new position made it impossible for him to give attention to other duties. Mr. Witham, who resigned as manager of the production engineering department of the Union Bag and Paper Corporation about a year ago, does not plan to move his family to Virginia at the present time although he is now located there.

Downingtown Iron Works Issues Useful Booklet

The Downingtown Iron Works, Downingtown, Pa., have issued an interesting and useful booklet entitled "Corrosion Resistant Alloys in General Fabrication." The booklet is written by T. Holland Nelson, consultant metallurgist for the Downingtown Iron Works.

A copy of the booklet will be gladly sent to anyone interested by making written application on their business letterhead.



Beater
Sheet Mould
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Drying Oven
Flat Screen
Couch Roll
Jordan
Rotary Steam Dryer

For Mills Who Want *BETTER PAPER*

That, of course, includes everybody. Because what mill—what engineer—what superintendent—is not everlastingly striving for better paper?

No, Valley Laboratory Equipment is not the only road to better quality. But it is a guide. It is one of the necessary guides. . . .

Both from the standpoint of maintaining uniform quality on each days run and assuring identical quality on repeat runs!

Incidentally, in keeping with our constant effort to improve the quality of our own products, Valley Laboratory Beaters are now equipped with ball bearings on both the journals of the roll and the fulcrum arm. Bars in the roll and bed plate are made of monel metal.

Why not write, right now, to the Valley Iron Works Co., Appleton, Wisconsin for complete information.

VALLEY

Equipment for Paper and Pulp Mills

New York Office: 350 Madison Ave.
Western Manufacturing & Sales Division: Smith & Valley Iron Works Co., Portland, Oregon.
Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., Montreal, Canada.

POWER PLANT SECTION

REDUCING POWER COSTS THROUGH UNIT TREATMENT

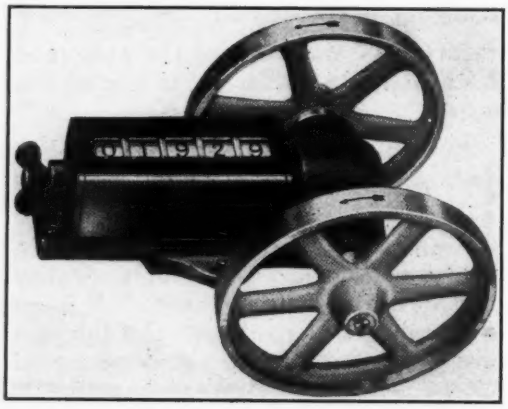
Conducted by Reginald Trautschold Consulting Engineer

Benefits of Speed Instrument Control

Speed Counters and Tachometers Potent Devices Maintain Quality of Output and Conserve Power

Speed of operation is inseparably associated with economical production, the effective utilization of power, quality of product and control of output. In short, speed is the dominating consideration in mill operation. It is essentially the index of accomplishment, whether judged from the points of view of operation and production or from that of managerial control.

Indicating and recording instruments, speed counters, motion recorders and tachometers, consequently, are among the most potent devices for effecting economies and forestalling trouble in mill conduct. They check and double-check the mechanical operations from the power plant through to the shipping room. They portray results rather than static conditions and, hence, supply the information needed for controlling, regulating and rectifying all influencing factors and conditions. They can be made use of profitably to indicate and record accomplishments in virtually every mechanical process in pulp and paper making



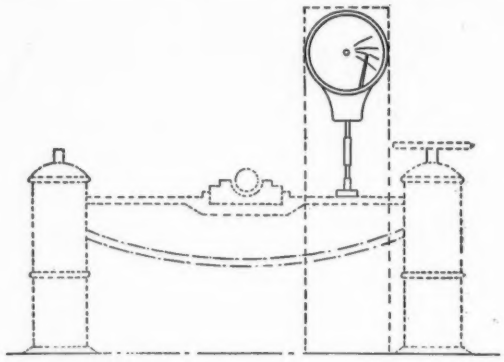
Courtesy: Veeder-Root, Inc.

FIG. 1

Mechanical speed counter adapted to measurements in lineal units.

and to detect irregularities in the consummation of almost any mechanical operation. So extensively can they be employed to marked advantage, in fact, that it is quite safe to say that no mill is as yet deriving all the possible benefits from speed instrument control.

The very nature of the service rendered by speed instruments, supplying information concerning accomplishments rather than furnishing information regarding specific conditions and needs, may be responsible in a measure for this situation. The information supplied is of more direct concern to the mill management than it is to the mill operatives, for speed instruments are distinctly tools of managerial control which measure and gauge the efficiency and economy in mill operation. Consequently, until the management appreciates in full the value



Courtesy: The Bristol Co.

FIG. 2

Mechanical motion recorder used to register pulp beater activity.

in instrument control, a quite unnecessary hardship is imposed upon the mill operatives and needless expenditures in mill operation are chargeable to the management.

Lack of authentic information concerning the benefits to be derived from proper speed instrument control and, possibly, lack of familiarity with the wide range and diversity of types of speed instruments now readily obtainable and very adaptable to paper mill requirements may explain why the use of such devices has not become even more general than it has. Many speed recorders and tachometers are employed in domestic and Canadian mills, it is perfectly true, but the use of such instruments and of speed counters could be greatly extended to the decided advantage and benefit of the mills. Familiarity with the instruments and with their possibilities is the first requisite, naturally, and, consequently, the present discussion may well be devoted to a general description of some of the approved types of speed instruments available and to incidental references to a few of the applications in pulp and mill services which have been productive of desirable improvements in mill operation.

Speed Counters

Though not used as extensively as speed recorders and

Air Is Cheaper Than Land

Practically all of the mills that have installed Vertical Dryers have been able either to forestall a building program, or avoid encroaching on floor space needed for other purposes.

If you must have more drying space, do likewise — go up. Air is cheaper than land.

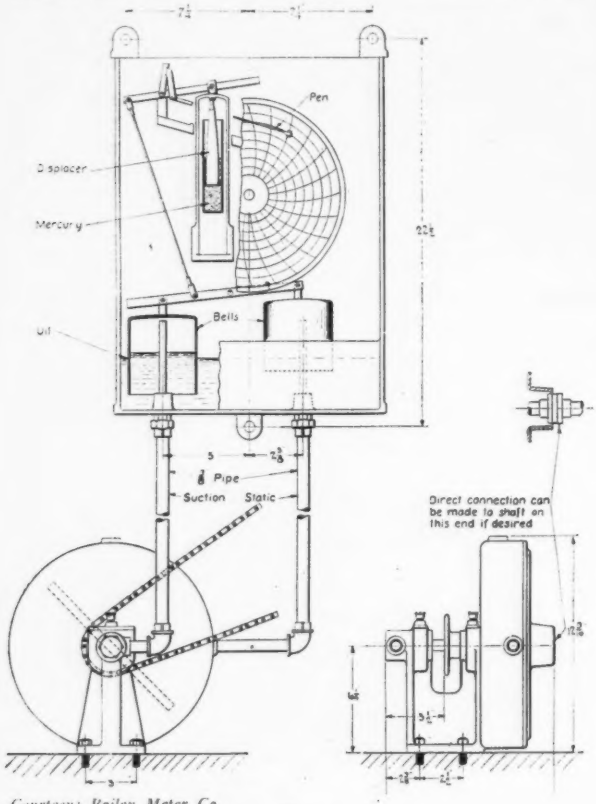
The Black-Clawson Co.,
Hamilton, Ohio
Operating Shartle Bros. Mach. Company
Middletown, Ohio
Export Office, 15 Park Row, New York City

BLACK-CLAWSON

Built with Machine-Tool Accuracy

tachometers, in which the rate of speed is the compound unit of measure, the simpler speed counters are in many cases highly useful instruments and admirably suited to certain pulp and paper mill processes. These instruments, incidentally, have evolved in types and functions far beyond the familiar speed indicator held against the end of a revolving shaft to record the number of revolutions made during a selected time interval and are procurable today electrically operated, as well as mechanically actuated. For the most part, the latter are now permanently attached accessories for automatically counting revolutions of strokes and, installed in connection with operating machinery, give an accurate check on production, the total results always available at a glance. The former, however, are the more adaptable, being somewhat more sensitive and permitting of a much more flexible arrangement of installation.

Whereas speed counters of the mechanical type are of necessity limited to installations where the counting instrument and recording dials can be placed at or in close proximity to the counting station, the electrical speed counter instruments can be located at a considerable distance from the point at which the count is actually taken, several recording dials from a number of scattered and individual counting stations mounted on a single panel at some central location. The individual counters may show the sum total of revolutions or strokes



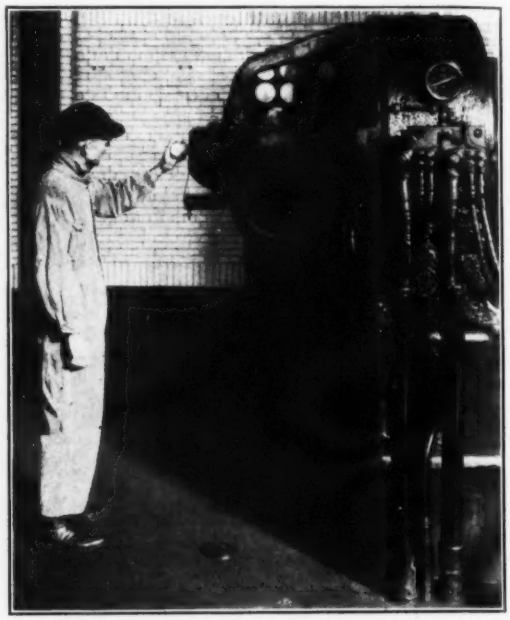
Courtesy: Bailey Meter Co.

FIG. 4
Mechanical recording tachometer, differential pressure.

for different operations or may record such activity on the part of any number of similar machines.

A noteworthy variety of mechanical speed counter, in that it is adaptable to the measurment of paper in lineal units, consists of the customary mechanical counter with its recording dials mounted on a hinged arm and supported by a pair of friction wheels which ride upon the traveling paper surface. The wheels are of comparatively large diameter and the traction actuating the counter mechanism is said to be very uniform. Readings from two such devices recording footage of paper passing successive counting stations some distance apart are employed to measure the stretch of the paper between such critical points, the difference in the readings of the two counters indicating the total amount of stretch.

An interesting application of an electrically operated device of the speed counter variety records the total elapsed time lost



Courtesy: The Forbarn Co., Inc.

FIG. 3
Noting armature speed with direct reading hand tachometer.

through paper breakage. A contactor unit similar to the mechanism installed at the point where the actual count is taken with an electric speed counter is placed so that its actuating lever rides on and is held open by the passing paper. When a break occurs, the contactor lever instantly drops and closes a circuit through an electric time totalizer and this latter device records in minutes and tenths of minutes the exact time elapsing between the breaking of the paper and the resuming of productive operations.

Contractors and Electrical Speed Counter Applications

Some of the most successful installations of electrically operated speed counters, with actuating contactors, are found, however, in the plants of paper converters rather than in the mills of paper producers. For instance, on many types of machines employed in the paper box industry the sheets of paper or cardboard follow one another so rapidly that it is not practical to attempt to count the individual sheets by means of a mechanical counter, insufficient time being provided for the actuating lever of the counter to trip between successive sheets.

This situation is prone to pertain in connection with the operation of modern cylinder presses, slitters, slotters, creasers, scorers, etc. and makes necessary the use of two contactors and an electrical counter for recording the number of sheets passed. One of the contactors is coupled to and positively driven by some shaft which makes exactly one revolution per sheet when the seperate sheets follow one another in continuous succession, *i. e.*, to a shaft actuating a roll having an outer circumference exactly proportional to the dimension of the sheet in line with the machine travel. The other contactor, operated by a sensitive lever of light construction, is installed at some other point where the traveling sheet is as free as possible from vibration. This

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PAPER & ALLIED TRADES

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The 55th Consecutive Annual Edition

THE OLDEST INDUSTRIAL DIRECTORY IN THE UNITED STATES

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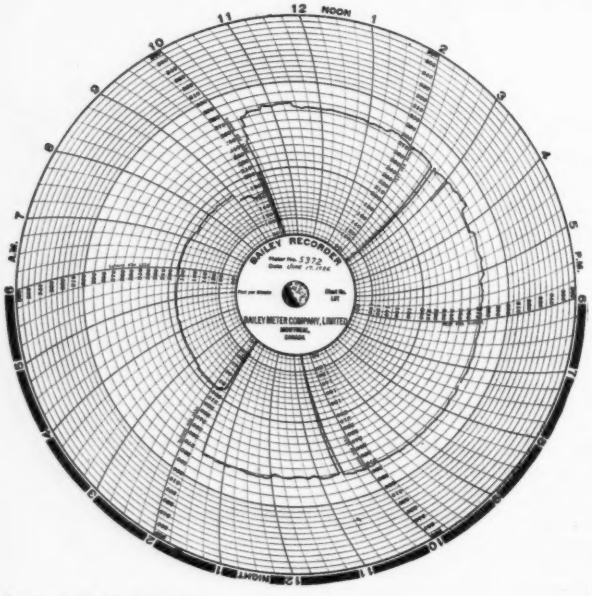
trip contactor is mounted in such a way that the passing sheets hold it closed while the flow of sheets is continuous, but at any interruption to continuous sheet passage or if any individual sheet is not immediately followed by another the contactor instantly opens. Both contactors being wired in series with the electrical counter, the instant the trip contactor opens the recording, or counting, of sheets automatically ceases. The shaft contactor counts the sheets by recording the revolutions of the measuring roll only while the trip contactor is held closed by passing sheets. Any interruption whatever to continuous sheet travel is noted by the trip contactor and the count is adjusted accordingly.

Much the same general principle of sensitive count regulation is employed in the operation of the recently developed "photo-electric" counting unit. This device is controlled by a power tube sensitive to light rays and is actuated by the light from an ordinary electric light bulb. The recording tube and the actuating light bulb are placed on opposite sides of the sheets to be counted, the interception of the light by the individual sheets effecting the energizing of the recording power tube furnishing an accurate record of the number of sheets passing the counting unit.

Motion Recorders

The classification of speed instruments referred to as motion recorders, while such terminology may be somewhat misleading, is to be interpreted as embracing those instruments which bridge the gap between speed counters and tachometers They automatically record the time of an operation, its duration and either the actual operation or the fact that the operation has been consummated. In the mechanical type of motion recorder, it is the actual operation which is self-recorded, while in the case of the electrically actuated device it is the fact that the operation is made



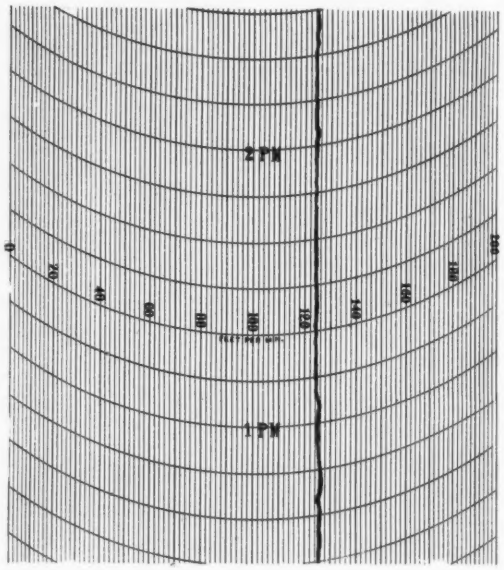
Courtesy: Bailey Meter Co.

FIG. 5

Chart of mechanical recording tachometer showing paper machine speeds for different grades of paper.

which is noted. These instruments are extremely adaptable to the recording of many operations common to pulp and paper making processes and are well deserving of consideration.

In the mechanical type of motion recorder, the movement of the stylus pen tracing the recording graph on the moving dial chart is secured through an external lever arm which is actuated by the motion of the operation recorded. Either clock driven, round or strip charts may be employed and the graph traced records the consumation of each individual operation or cycle of movement, just when it occurred and the extent of the movement. Such an instrument is well adapted for recording the operations of gates and valves, conveyors and elevators, engine governors and damper controls, for functioning as a liquid level, or depth, gauge or for posting the activity of pulp grinders and of beaters in pulp mills, etc. In fact, almost any operation entailing mechanical movement in defined cycles can be recorded, timed and measured by these instruments.



Courtesy: The Bristol Co.

FIG. 6

Strip chart recording paper machine speed traced by an electric recording tachometer.

The use of these instruments to record pulp beater motion, to specify one important service of quite general concern, has in a number of instances proved highly beneficial and profitable, bringing to light many conditions of prime importance in economical beater operation. One prominent mill advised, in fact, that since the installation of pulp beater motion recorders, the instruments had been directly responsible for an annual saving of several thousand dollars.

The electrically operated recorders supply very much the same kind of information and have the added advantage that the instruments with their recording dials may be located at a distance from where the operation recorded is consummated. A functioning switch, or lever, is actuated by the operating movement at the point of taking the reading, making or breaking an electric circuit through the recording instrument. The recorder proper may be furnished with several stylus recording pens, each an independent unit operated by an individual electric magnet and circuit, with its actuating switch lever recording activities on several machines at the same time, or readings from different points. The graphs traced by these instruments indicate rather than reproduce the operation movements, but otherwise they supply very much the same information furnished by mechanical motion recorders.

A quite typical service rendered by these extremely adaptable and versatile electrical motion recorders is in the maintenance of a register concerning the daily operation of six paper machines at a prominent paper mill. Only one recording instrument is entailed, for it is provided with six independent operating magnets, circuits, etc., which record simultaneously the daily activity of the six paper machines on the one dial chart. These records, automatically maintained, are examined each day by the mill superintendent and from them he learns just how long each machine has been down during the preceding

Facts to Make Insurance Sure

Insurance protects values, not property. Hence the first essential in placing insurance is to know values accurately.

This necessity is magnified when protection takes the form of co-insurance, for under this form, coverage must reach a specified percentage of the value. Should the insured fail to meet this obligation, he must inevitably suffer in the event of fire.

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24 hours and the exact number of paper breaks occurring in the various runs. Such records, obviously, are invaluable to him in laying out his schedules and in building-up mill efficiency. At the same time, the records prove very helpful to the operatives in enabling them to operate the machines at high efficiency and to better effect. Graphic presentations of accomplishments invariably prove a spur to the attainment of better results.

Tachometers and Tachometer Applications

The use of tachometers, which record or simply indicate the speed of rotation of revolving machinery or measure such speed of rotation in lineal units, is also of prime importance in effecting improvements in mill operation. The somewhat more complex speed instruments, the evolution of the still exceedingly useful hand tachometer for noting the rate of shaft rotation, may also conveniently be classified as being either mechanical or electrical instruments.

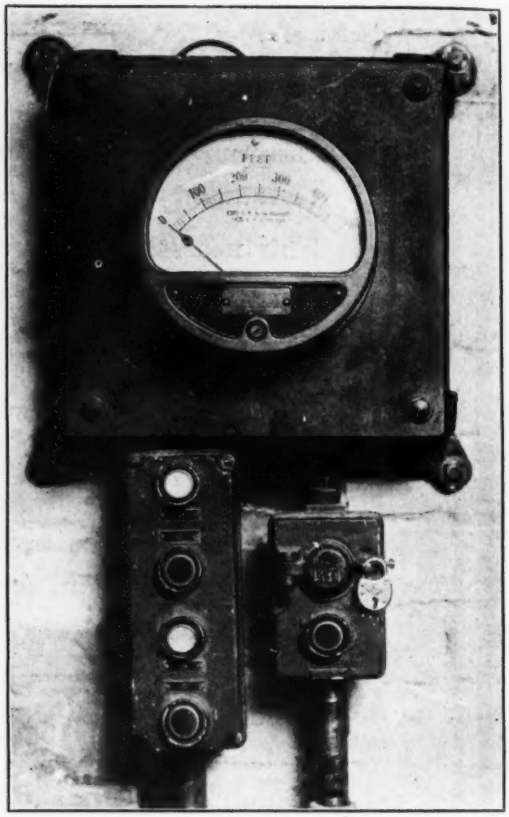
Courtesy: The Electric Tachometer Corp.

FIG. 7

Indicating type electric tachometer, showing magneto and indicator, calibrated in feet per minute, with connecting cable.

The operation of mechanical tachometers, either of the recording or indicating type, is based upon various mechanical principles, only one of which will be expounded, that of a differential pressure mechanism, since such construction has proved eminently satisfactory in the exacting services encountered in pulp and paper mill conduct. In one such approved make of tachometer, the rotor, or source of actuating power, is made up of a tube attached at its midpoint to a hollow shaft so as to form a "T" and is driven from a suitable shaft in the machine whose speed is to be recorded. The centrifugal force developed by the rotation of the hollow shaft forces the air out of the ends of the "T" section and, consequently, reduces the pressure, creates a suction, within the rotating element in direct proportion to its speed of revolution.

The reduced tube pressure and the static pressure within the rotor casing are both transmitted to the recorder, or indicator,



Courtesy: Westinghouse Electric & Mfg. Co.

FIG. 8

Indicating type electric tachometer functioning in speed control system, showing indicator and speed regulator with start, fast, slow and stop push button stations.

by means of connecting piping and applied to oil sealed bells hung from opposite ends of a beam balanced on a knife edge. The differential pressure thus applied operates the recording mechanism so as to give a record proportional to the speed of the driving machine, in the form of a graph traced on a timed revolving dial chart or by an indicating needle swinging over a graduated dial scale. The speed may be expressed in revolutions per minute on in conforming lineal-time units.

When applied to the recording of speed of paper machines, imposing the necessity for taking into account atmospheric conditions, the slight variations in the differential pressures produced by the revolving rotor tube, occasioned by changes in density of air caused by modifications in temperature and barometer conditions, are rectified in a most ingenious manner. An air filled bulb is connected to the closed leg of a mercury "U" tube by means of a steel capillary, the other end of the "U" tube terminating in a reservoir in which a small float, connected so as to operate a mercoid switch, rests on the contained mercury.

When the temperature is low or the barometer registers high, conditions which signify an increase in the densisty of the

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air, the decreased pressure in the air-filled bulb in one case or the increased atmospheric pressure on the mercury in the open end of the "U" tube in the other, cause the level of the mercury in the closed leg of the "U" tube to fall and also the level of the mercury in the reservoir. The accompanying drop of the float on the reservoir mercury closes the mercoid switch and completes an electric circuit containing a small heater within the rotor casing. As the temperature of the air in the rotor casing is elevated by the heater, the air in the air-filled bulb expands and forces some of the mercury back into the reservoir, raising the float and breaking the electrical circuit. In this manner, the density of the air surrounding the rotor is maintained constant and a given pressure differential is assured for any given speed of rotor rotation.

Such a refined variety of mechanical tachometer is well adapted for indicating and recording the speed of paper machines, the recording dial in such service usually reading in feet per minute, conforming to the rotating speed of the driving shaft on the machine and to the paper speed. With or without the compensating refinement for rectifying variations produced by changes in atmospheric conditions, these tachometers are also well suited for indicating and recording the speeds of turbines, blowing engines, fans, centrifugal pumps and numerous other varieties of high speed rotating equipment.

Operation of Electrical Tachometers

The operation of electrical tachometers is based upon the well known law that the rotation of a magneto will impose a voltage directly proportional to its speed of revolution. Such devices, consequently, are made up of two main parts, the magneto unit for developing the actuating electromotive force and a recording instrument which is in effect a type of voltments to be placed at strategic locations, and, of course, at any whose speed is to be measured and imposes an electric potential proportional to the speed at which it is driven in a closed circuit containing the recording voltmeter indicator, calibrated to register in revolutions per minute, feet per minute or other conforming linealtime units.

Several inidcators or recorders, the latter employing either round or strip timed charts on which to plot registering graphs, may be operated by the magneto, allowing a number of instuments to be placed at stategic locations, and, of course, at any desired distance from the actuating magneto. A recording instrument, for example, may be placed in the superintendent's office and one or more indicating units in the machine room. An indicator in view of the machine tender enables him to adjust his speed to a nicety for given grades of stock, as determined from experience on former runs, while a recorder in the office will give the superintendent a clear picture of conditions as they may be at any particular moment and also as they have been maintained. Both the operating and managerial interests are well served.

Numerous other specific applications of these valuable speed instruments could be featured, but the aim of this discussion is simply to draw attention to approved varieties of speed indicating and recording instruments, speed counters, motion recorders and tachometers, well suited for use in developing efficient systems of effective speed instrument control and to arouse interest in these modern aids in the discharge of managerial responsibilities. It is felt that the value of the devices in maintaining quality mill output at low cost in any way with economical mill operation, without the need of presenting further examples, since such examples at best can only fit into some far more elaborate scheme evolved at and by each individual mill.

The speed instruments which have been noted are essentially managerial tools, however, by which accomplishments may be measured and incidental operations guided. Their proper use will assist greatly in supplying that information needed for keeping individual operations in line and so synchronized that the benefits of progressive and economical mill conduct may be better realized.

FRASER LTD. CONVEYING SYSTEM

(Continued from page 40)

have an automatic transfer of a better construction than has been used formerly.

The short feeder conveyors (patent applied for) are of the traveling apron type, with steel retaining sides. The apron consists of steel plates and cross angles, mounted on two strands of chain, and serves to discharge the logs into the working mechanism of the barkers in the right way at the proper rate.

In Fig. 6, at the left is a flat-top sorting table conveyor, made up with a double strand of steel roller chain upon which steel channels are mounted to form the continuously-moving platform on which the logs are sorted. In the background, at the left, near foot end of conveyor, you can see the three points where the logs are discharged onto it from the barkers. The conveyor apron, or platform, is of a very rugged construction, as is required for such service.

This conveyor discharges the logs that have passed inspection, either to the wood room, or to a storage pile. The rejected logs (those requiring further de-barking) are shoved over into a trough of the single-strand-chain reject conveyor, which is shown at right in Fig. 6.

The reject conveyor carries the rejected logs back, over an inclined conveyor into one of the transfer conveyors, to pass again through crosswise feeder conveyors to the barkers, and finally back onto the sorting table conveyor.

The barking plant just described was engineered by W. H. Wharton, of Canadian Allis-Chalmers Company, Ltd., working in cooperation with Link-Belt Limited, Toronto, who supplied all chain, sprockets and miscellaneous transmission machinery.

W. J. Endersbee Appointed Forester

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., March 31, 1930.—Appointment of W. J. Endersbee as forester in Oswego county has just been announced by the board of supervisors and he will assume his new duties immediately. He is a graduate of the New York State College of Forestry at Syracuse University and for some time was engaged in reforestation work at Great Barrington. The services of a county forester are made possible through the cooperation given by the forestry school attached to St. Lawrence University. His salary will be paid from the earnings of the endowment fund of the university's forestry school which was a gift from Floyd L. Carlisle for the purpose of promoting reforestation.

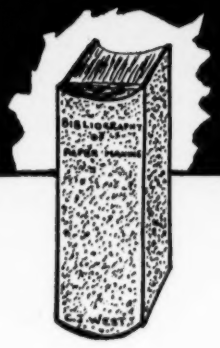
About 5,000,000 Norway spruce trees will be planted this spring by the St. Regis Paper Company, according to J. E. Kieb, forester. It is planned to place about 2,500,000 in the Santa Clara area in Franklin county, where the company has large holdings and about 1,000,000 will be planted on the Titusville site near Malone. About 1,500,000 will be planted in the De Grasse River section and 100,000 in the Deferiet tract.

Attachment Against Nashua River Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 31, 1930.—An attachment of $360,000 has been filed in the Middlesex Superior Civil Court, East Cambridge, in an action of contract against the Nashua River Paper Company, of East Pepperell, Mass., by Roger Q. Pease, of Groton, Mass., and B. Milton Kimball, of Pepperell. The action is also against the following as trustees: Stone & Forsyth, Company, Boston; H. J. Dowd Company, Inc., Boston; Ginsburg Bros., Somerville, Mass.; United States Envelope Company, Springfield, Mass.; and American Reinforced Paper Company, Attleboro, Mass. The attachment covers all of the rights, titles and interest of the Nashua River Paper Company and its real estate in Middlesex County and is returnable on the first Monday in May.

Bibliography of Paper Making



Compiled by Clarence J. West

Chairman, Committee on Abstracts and Bibliography, Technical Association of the Pulp and Paper Industry
Director, Research Information Service, National Research Council
Associate Editor, International Critical Tables

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10 East 39th St., New York, N. Y.

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ESTABLISHED 1872

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Vol. XC New York, April 3, 1930 No. 14

PAPER STRUCTURE OF NEW ENGLAND

The manufacture of paper and paper products is discussed at considerable length in the "Industrial Structures of New England," which is the title of a survey that has just been completed by Mr. Charles E. Artman of the Department of Commerce.

Mr. Artman finds that improvements in one or more of the important phases of manufacturing activity have been general in the paper industry in this section of the country. These improvements are not limited to the larger concerns, as more than 80 per cent of all those replying indicated that they have been devoting thought and study to the improvement of their manufacturing conditions. Among the primary manufacturers a good deal of attention has been given to the continuous maintenance of equipment, as well as to organization and executive control. A large number of instances indicated attention to improved methods of production control and of cost accounting. Industrial research is receiving special attention among several of the larger companies.

Among the makers of paper products efforts have been made to standardize materials and products and to maintain continuous operation of plant and equipment. One concern reported that by the development of purchasing schedules and the resulting improved rate of turnover, its investment in inventory has been reduced, while another stated that production control methods had been responsible for an increase in average monthly production from 200,000 to 650,000 pounds within a 5-year period. In another case the motorizing of machines and running them through the noon hour was said to have resulted in an 80 per cent increase in production.

One box-manufacturing concern reported the reduction of costs by increasing the output per employee and reducing labor turnover. In this connection another stated that a bonus system of wage payment has been of assistance. In another instance the reorganization of sales efforts and better production methods are credited with an increase of approximately 20 per cent in sales. Methods of cost accounting are credited by another manufacturer as of the greatest benefit.

The attitude of the paper mills of New England in regard to the installation of new and improved equipment is indicated by replies to a special inquiry directed to a number of leading executives of the industry. These executives indicated that it is their general practice to make constant improvements in machinery that will result in increased output and improved quality of product. This often means a very heavy financial outlay. One executive stated, "Once we are convinced of the practicability of any improvement presented to us, we never hesitate to put it into operation immediately, often only experimentally. We feel satisfied that there are a number of concerns in New England which have the same policy; but at the same time we know of some others which are definitely suffering because they have not operated on this policy." Another executive says, "We have met with much success in designing and building machines of our own invention to replace hand operation." The executive of another company reports that during the last six years his company's efforts have been redoubled along the line of improved equipment, to the extent of scrapping thousands of dollars worth of machinery.

In considering the trend of sales in the paper industry it is important to bear in mind the pronounced changes in price of paper and paper products during recent years. These, of course, are reflected in the changes in total value of production, as well as in the sales of individual companies. A falling-off in value of total sales, therefore, does not necessarily mean a corresponding reduction in plant activity. The pronounced contrasts in sales trends since 1921 among the different groups of manufacturers are doubtless attributable in some measure to price variations.

Each of the four groups had a pronounced increase in sales from 1921 to 1923, as shown by the records of the reporting companies, but the manufacturers of paper products and of paper boxes surpassed the primary manufacturers and converters to a noticeable extent. From 1923 to 1925 the sales trend of the former group continued to advance, while the total for the primary manufacturers shows a falling off.

Among the primary manufacturers the aggregate sales of 38 concerns, making a total of $97,000,000 in 1925, reveal an increase of 34 per cent from 1921 to 1923, followed by a decrease of 6 per cent from 1923 to 1925. This falling off occurred in 1924 and was partly made up by increased sales in 1925. While all but 4 of these companies showed increases in individual sales from 1921 to 1923, there were 20 whose sales decreased in 1925 from those of 1923. Sixteen concerns showed a continuous increase in volume of individual sales from 1921 to 1925, while 6 others showed decreases in this period. No relation is observed between the sales trend and the size of business, as some of the largest companies show decreases and some of the smaller ones show increases.

The converters making finished paper show less shift in their sales trend in the different years. The aggregate for 30 converters, with sales of $46,000,000 in 1925, showed a smaller rate of increase (22 per cent) from 1921 to 1923 than that of the primary manufacturers; but the converters' increase continued

through 1925, with a slight decrease in 1924, resulting in a net increase of 6 per cent over the 1923 figure. All but 6 of these 30 companies had a greater volume of sales in 1925 than in 1921. Eleven firms, including one $5,000,000 company, had a falling off in 1925 sales as compared with 1923; while 14 others, including 3 concerns of over $5,000,000 each, had increased sales in 1925.

Among the makers of secondary paper products the aggregate sales show a continuous increase since 1921. The sales for 28 companies aggregating $25,000,000 in 1925 showed an increase in 1923 of 57 per cent over 1921, and in 1925 an increase of 17 per cent over 1923, the total increases from 1921 being 82 per cent. All but four small concerns showed an increase in 1925 sales compared with 1921. Since 1923 there were 16 concerns whose individual sales decreased including one doing a million-dollar business. There were 12 others whose sales in 1925 surpassed those of 1923, one of these concerns doing a $3,000,000 business, and another concern over $10,000,000.

Among the mill owners the major reasons for declining sales were given as a general over-capacity, competition from other sections, and high labor costs; while the mills whose individual total sales have increased attribute their increases to lower manufacturing costs, to better sales methods, and to new products. Among the manufacturers of paper goods, those that reported an increase in total sales during the period since 1921 believe the contributing factors have been the extension of sales territory, the application of new and better selling methods, and a reduction of costs, which has enabled them to quote lower prices.

The replies indicate that most of the New England paper mills sell the greater part of their output outside New England. The weighted average of sales in New England for 37 of these primary manufacturers with a total output in 1925 of about $94,000,000 was 28 per cent. Two small companies reported the sale of their entire product in New England, and 10 others make the majority of their sales in those States. The reports of 25 mills including all the largest ones, indicated the great majority of their sales ouside New England, their sales in that section in most instances ranging from 10 to 30 per cent, and in some instances less.

The larger paper manufacturers sell their products throughout the United States, but the principal marketing centers outside New England are supplied through New York channels. Exports in this group were reported by 15 concerns, the commonest range being from 1 to 3 per cent, although several companies export a considerable portion. One company, with sales amounting to $1,500,000, reported exports of 13 per cent of the total; another, with sales of $8,000,000, reported 7 per cent; and one concern with sales over $10,000,000 exports 5 per cent of its output.

Among the converters and makers of finished paper, replies from 32 concerns indicated New England sales averaging 19 per cent of their aggregate output; 15 of these, however, reported the majority of their sales in New England, while 17 sell more in other sections of the country. Some of these products have national distribution, but most of them find their principal market in the Middle Atlantic States. Some sales are reported in the Middle West, in the South, and on the Pacific coast. Twelve of these concerns reported exports, the usual range being from 1 to 5 per cent. A maker of special safety paper reported exports of 14 per cent, and a large manufacturer of tags and crepe paper exports 9 per cent of his output, while a maker of waxed paper reported exports of 8 per cent.

The replies from the paper mills give evidence that the New England market has become of increasing importance to the primary paper manufacturers, as 80 per cent of them state that sales in New England have been on the increase. These increases are attributed by individual manufacturers to stronger selling efforts, to the increased demand for paper products, such as paper napkins and towels, to direct selling to converters, and to increased purchases by the converting trade. Several concerns indicate increased emphasis upon sales in New England, such as advertising and more extensive canvassing and circular-letter campaigns.

Plan for Signing Wage Agreements

ALBANY, N. Y., March 31, 1930.—Despite the fact that many paper manufacturers in this country and Canada have responded to a letter sent out recently from the offices of the International Brotherhood of Papermakers asking for tentative dates for a conference in the near future relative to the signing of wage and working agreements which expire on May 1 it was learned that no definite schedule has yet been arranged. Officials of the organization said that they hoped to have the schedule completed next week so that representatives of the union could travel from place to place without going over the territory twice and by so doing have all conferences completed next month. In addition to President Burns it is planned to draft other officials to represent the organization at the coming conferences. Frank P. Barry, vice president, and Arthur Huggins, secretary, will also aid by being delegated to attend certain conferences while J. P. Burke, president of the Pulp, Sulphite and Paper Mill Workers' Union, will also represent his organization at many meetings. It is planned to send only one delegate to the meetings held in Canada while another will also be sent to conferences in Boston and other parts of the New England States.

It was also announced that J. P. Burke, of Fort Edward, will accompany Arthur Huggins, secretary, to Tonawanda, where they will represent the union at a banquet given by the Tonawanda Paper Company and its employees on April 6. On the afternoon of the same day they will attend a meeting of the papermakers' union at Thorold, Canada. Matthew Burns, president, left on Saturday for Watertown to attend a conference on the following day with representatives of all locals in Northern New York. The nature of the conference was not disclosed.

Hawkesbury Mill Wins Safety Prize

HAWKESBURY, Ont., March 31, 1930.—The plant here of the Canadian International Paper Company has won the prize for having had the smallest number of accidents during the year 1929 among thirty-seven paper and pulp mills in the Province of Ontario operating under the Compensation Act. This is the second time in recent years that Hawkesbury mill has won this prize.

The Hawkesbury mill, one of the two mills of the Company making high-grade bleached sulphite pulp, has a capacity of 140 tons a day and is located on the Ottawa River midway between Ottawa and Montreal. At Kipawa mill the company manufactures sulphite wood cellulose for manufacturers of rayon.

At Hawkesbury are located the Company's research laboratories. A separate department is devoted to identifying and stabilizing from a pulp-making point of view, those characteristics of wood cellulose having actual value to makers of rayon yarns and high-grade papers.

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By CARL R. MILLER

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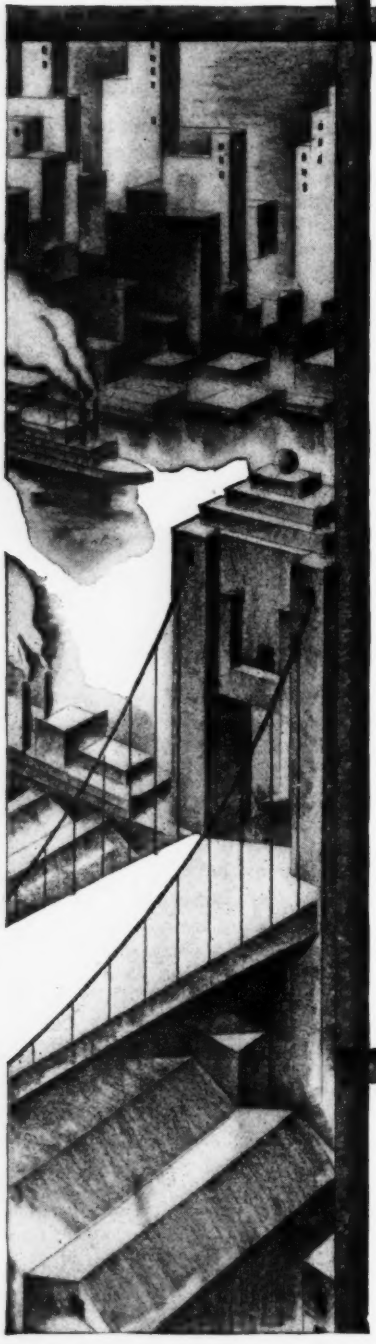

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

By Clarence J. West, Chairman

For additional information regarding these abstracts subscribers should address the chairman of the Abstracts Committee, Dr. Clarence J. West, National Research Council, 21st and B Streets, Washington, D. C.

Sulphite Process

Catalytic Action of Selenium on Calc'um Bisulphite Solution in Cellulose Production. N. F. Jermolenko. Chem. Ztg. 53, 343-344 (1929). Under the conditions obtaining during sulphite cooking, free sulphur, which is always present in the cooking liquor, combines with the sulphurous acid to form thiosulphuric and polythionic acids which are themselves decomposed, yielding sulphuric acid and sulphur. Sulphuric acid is especially dangerous in this process since it causes hydrolysis and charring of the cellulose and renders it useless. Pyrites the starting material for the preparation of the calcium bisulphite used always contains selenium, which behaves in a similar manner to sulphur but has a catalytic action about 500 times as great. Experiments carried out in an autoclave under normal conditions of cooking, except that increasing amounts of selenium were added, show that a concentration of 0.7 mg. of selenium per liter of the cooking liquor renders the cellulose unfit for papermaking after 10 hrs. cooking at about 140 deg. At about 130 deg. this concentration causes darkening of the liquor but no charring of the wood shavings used, whereas 1.4 mg. per liter causes charring. The higher the concentration of selenium present, the greater is the calcium sulphate content of the precipitate formed and the less its calcium sulphite content, thus illustrating the catalytic action of the selenium.—C. J. W.

Cymene, a Byproduct in the Manufacture of Cellulose by the Bisulphite Process. E. Boedtker. J. Pharm. Chim 9:417-434 (1929). The analysis, composition and purification of crude cymene obtained in the bisulphite process for the manufacture of cellulose from wood is described. The chief impurities are terpenes, resins, fatty acids and furfuraldehyde. Methods for their removal are discussed. Pure cymene is not oxidized on exposure to air; it boils at 177.1-177.2 deg. at 760 mm.; the density is 0.8606 at 15 deg. the refractive index 1.4920 at 18 deg. C. J. W.

Conductivity and Hydrogen Ion Measurements. W. N. Geer, Leeds & Northrup Co. Paper Tr. J. 89, No. 4, 51-53 (July 25, 1929). It is suggested that electrometric equipment could be satisfactorily used for hydrogen ion concentration measurements for the control of sulphite cooking, washing sulphite pulp and washing soda pulp. A. P.-C.

Advantages of Sodium Bisulphite Over Calcium Bisulphite in Cooking Liquors. L. J. Dorenfeldt. Pulp Paper Mag. Can. 28, 320-321, 350, 352 (Aug. 29, 1929). Paper Ind. 11, 636-640 (July 1929). A general discussion of the advantages of the use of sodium instead of calcium as a base in sulphite acid cooking liquors, dealing at some length with sulphite liquor recovery and indicating the lines along which further researches should be conducted. A. P.-C.

Recovery of Valuable Products from Spent Sulphite Liquors. G. A. Richter assignor to Brown Company. U. S. pat. 1,710,272, April 23, 1929. Spent liquor from the cooking of wood with a solution of ammonium sulphite or ammonium sulphate is neutralized (preferably with basic calcium phosphate) and evaporated out to dryness, and the dry residue is used as fertilizer. A. P.-C.

Pressure Sulphur Burner. H. Howard assignor to The Grasselli Chem. Co. U. S. pat. 1,708,094 Apr. 9, 1929. The burner comprises a chamber consisting of an air tight outer cylindrical steel shell insulated with firebrick and provided with substantially horizontal arched partitions (preferably made of a highly heat-conducting refractive material, such as "Carbofrax"), which divides the chamber into three superimposed compartments. Molten sulphur under pressure is introduced into the top compartment near the side wall where it is vaporized and mixed with a regulated amount of air under superatmospheric pressure. The burning gases pass down into the middle compartment through a spiral mixing port in the center of the top partition, which acts to further mix the air and sulphur vapor, ensure practically complete combustion in the middle compartment. The gases then pass into the lowermost compartment through a series of ports in the lower partition, which are placed near the wall of the chamber. It is claimed that by proper regulation of the sulphur feed and admission of air the sulphur dioxide content of the combustion gases can be maintained practically constant and nearly at the theoretical limit (maximum practically attainable about 18%). A. P.-C.

Thorne Pressure Process of Sulphite Cooking. C. B. Thorne. U. S. pat. 1,691,682, Nov. 13, 1928; Paper Tr. J. 89, No. 7, 61-62 (Aug. 15, 1929). When sulphite liquor is heated there is a tendency for the sulphur dioxide to be liberated, and to avoid this the heated liquor is maintained under pressure by circulating a gas (preferably sulphur dioxide) under pressure through the apparatus. From the storage tank the acid can be pumped through a series of heaters (which preferably utilize waste heat, such as that from the waste liquor from the blow-pits and the digester relief) into a hot liquor tank. The latter is connected at the bottom with a pulsating tank, and the latter again with the digesters, a heater, being preferably interposed in the acid line from the pulsating tank

to the digesters, and this acid line being connected so as to fill the digesters either from the bottom or from the top. A compressed sulphur dioxide line is connected to the top of the hot liquor tank, the pulsating tank and each of the digesters; and from the top of each of these there is a pipe connecting with the relief line. The hot liquor tank and pulsating tank are of similar construction to the digesters. After charging the digesters with chips, sulphur dioxide is admitted to a pressure of 70 to 100 lbs. per sq. in. the digester is filled with hot acid from the hot acid tank, and if required, cooking is continued by means of steam, preferably by indirect heating. Circulation or pulsation of the liquor in the digester may be produced by forcing some of the liquor into the pulsating tank and then forcing it back either into the top or into the bottom of the digester. Except for the pumping of the liquor from the storage tank into the hot liquor tank, the acid is handled exclusively by the compressed gas pressure. A. P.-C.

Process for Pulping Rice Straw. Cartiera di San Giovonni Lupatoto. Fr. pat. 658,640, Aug. 6, 1928. The cut and dusted straw is cooked first with a very dilute alkaline solution at about 100 deg. C. for about 30 min. then with a solution of sulphur dioxide and sodium or calcium sulphite containing about 8 per cent to 12 per cent sulphur dioxide calculated on the weight of the straw and about 60 per cent to 80 per cent free and 40 per cent to 20 per cent of combined sulphur dioxide, for 4 to 5 hrs. at about 100 deg. to 110 deg. C. The cooked straw is washed for about 30 min. treated with a very dilute soda solution, and finally bleached in the usual manner. A. P.-C.

Wolf Sulphur Dioxide Recovery System. R. B. Wolf. U. S. pat. 1,699,556, Jan. 22, 1929; Paper Tr. J. 89, No. 5, 49-50 (Aug. 1, 1929). In cooking with acid having a high sulphur dioxide content (7 per cent or more), so as to reduce the time of cooking without effecting the quality of the pulp, the recovery of sulphur dioxide at the end of the cook has heretofore required the installation of a large condenser and an acid system, either milk of lime or tower, to absorb the acid gas. According to the present invention the gas relieved during the final portion of the cook, when the pressure is reduced before blowing the charge, is first preferably passed through a separator to remove the entrained fiber and water, the separator being connected to the blow-pit to deliver the separated fiber and water thereto; the gas from the separator passes to a condenser where it flows in counter-current to a stream of water which is regulated so that its temperature on leaving the condenser is about 200 deg. F., and this water also is delivered to the blow-pit; the gas from the condenser is finally sent to an absorber of such capacity that during the period of the final relieving of pressure (generally about 20 min. or so) a large amount of acid (about 300,000 gallons) containing 7 per cent or more of sulphur dioxide is passed through the absorber so as to effect practically complete absorption of the sulphur dioxide. A cooler may be provided to reduce the temperature of the acid after absorption of the sulphur dioxide, and any unabsorbed gas is sent to the acid system to be absorbed. A. P.-C.

Welded Pulp Digesters. T. McLean Jasper, A. O. Smith Corporation. Paper Mill 52, No. 26, 4, 6, 33 (June 29, 1929). A general picture is presented of the development of welding in the various industries in which welded vessels have been in service continuously for about four years under the most severe working conditions. A. P.-C.

Sulphite Mill Problems. R. T. Steedman. Pulp Paper Mag. Can. 28, 95 (July 18, 1929). A plea for a franker and more complete interchange of knowledge and experience between sulphite mill superintendents in Canada. A. P.-C.

Bleaching

Wood Fiber for High Grade Paper and Derivative Manufacture. G. A. Richter assignor to Brown Company. U. S. pat. 1,709,322, Apr. 16, 1929. High-grade unbleached sulphite pulp is treated at a consistency of about 10 per cent with a solution containing about 1 to 2 per cent of hypochlorite or about 0.3 to 0.6 per cent of chlorine (on the weight of dry fiber), boiled at atmospheric pressure for 3 to 5 hrs. with a 0.5 per cent caustic soda solution, washed, bleached with an alkaline calcium hypochlorite solution containing about 3 to 5 per cent or 35 per cent bleaching powder (calculated on the weight) of dry fiber, and washed. The characteristics of the resultant pulp are: alpha-cellulose 93.5 to 96 per cent, beta-cellulose 2 to 4 per cent, gamma cellulose 2 to 25 per cent, lignin 0.3 per cent, total cellulose 99 per cent, copper number 1.0 to 2.3, resins, etc. 0.2 to 0.4 per cent, average fiber length 1.0 to 1.5 mm. Herzberg fiber stain reddish purple, solubility in boiling 3 per cent caustic soda solution not over 9 per cent, time of beating required for normal papermaking 7 to 8 hrs. pop test (Mullen) of resulting paper 60 points per pound basis weight, tearing resistance per basis weight 200, folding endurance in double folds per basis weight 7 to 10, initial color below 104 to 105. A. P. C.

Process and Apparatus for Bleaching Pulp. J. M. Voith, Fr. pat. 658,975, Aug. 13, 1928. The pulp is conveyed pneumatically by means of compressed air, and the bleach liquor is fed into the pipe through which the pulp is conveyed. The liquor feed is produced by means of an injector operated by compressed air from the same source as is used for conveying the pulp, so that the amount of liquor is thus automatically regulated to the amount of pulp passing through the pipe. A. P.-C.

Sizing

Rosin in Wax Size. C. H. Lafontaine, Bennett Ltd. Pulp Paper Mag. Can. 27, 970 (June 27, 1929). A brief discussion of the advantages of rosin wax mixtures over straight rosin for engine sizing. A rosin wax emulsion suitable for sizing has been successfully prepared and used for the last 4 years. A. P.-C.

Buffer Process for Sized Liner Paper Board. A. W. Wickham and R. W. Shaffer, McAndrews & Forbes Company. Pulp Paper Mag. Can. 27, 920-921 (June 20, 1929); Paper Tr. J. 88, No. 24, 82, 94 (June 13, 1929); Paper Mill 52, No. 25, 5, 37 (June 22, 1929).

The process intended primarily for prevention of desizing of the liner and consists essentially in maintaining a slight acidity of the stock in the vat next to the liner by adding alum by means of a dry feeder to the stock forming the ply next to the sized liner the alum being added preferably at the screen. The advantages claimed are: prevents entrance to the liner of alkaline water squeezed from the filler plies at the presses, thus preventing desizing of the liner; produces a freeing action of the stock, thereby making it possible to dry the board more readily; the flocculent aluminum hydrozide precipitated on addition of the alum entrains such of the size alum precipitates as was made in the beater but which was not firmly attached to the fibers of the liner stock, thus enhancing sizing efficiency; more uniform sizing; decreased cost of sizing; better formation; increased strength; more uniform color; increased production. A. P.-C.

Rosin Size in Papermaking. C. E. Mueller Paper Makers Chem. Co. Paper Mill 52, No. 23, 18, 20, 60, 62, 81 (June 8, 1929); Paper Tr. J. 83, No. 24, 79-82 (June 13, 1929); Pulp Paper Mag. Can. 28, 219-220, 238-242 (Aug. 8, 1929). After a brief discussion of the effect of the pH value of the stock showing that the optimum pH value varies according to mill conditions and the qualities required of the finished paper, a number of examples are given of sizing troubles actually encountered in paper mill practice and of the ways in which they are eliminated. A. P.-C.

Bakelite Sizing by the Beater Method. Joseph Rossman, U. S. Pat. Office. Paper Tr. J. 89, No. 2 61062 (July 11, 1929). A description of Bakeland's U. S. pat. 1,160,362, Mar. 16, 1915, Redman and Cheetham's U. S. pat. 1,551,428, Aug. 25, 1925 and Haanen's U. S. pat. 1,630,424, May 31, 1927. A. P.-C.

Paper Sizing Patent Review. Joseph Rossman, U. S. Pat. Offi. Paper Tr. J. 89, No. 4, 54-60 (July 25, 1929). A review of U. S. patents for engine sizing, with abstracts of patents from 1852 to July 31, 1928. A. P.-C.

Rosin Sizing. Almeron W. Wickham, MacAndrews & Forbes. Company. Pulp and Paper Mag. Can. 27, 919-920 (June 20, 1929) Paper Trade J. B No. 24, 94, 93 (June 13, 1929); Paper Industry 11, 657-658 (July 1929); Paper Mill 52, No. 24, 16, 18 (June 15, 1929). A brief address emphasizing the necessity for proper control of rosin sizing. A. P.-C.

The Semi-Sulphite Process*

II. Experiments in Duplicating Commercial News and Wrapping Papers

By C. E. Curran[1a], W. H. Monsson[1b], and G. H. Chidester[1c]

Introduction

A preliminary report on the semi-sulphite pulping process was presented in October 1928.[2] Data from a small number of pulping tests, based upon certain modifications of the "quick cook" sulphite process, were reported in connection with the production of a grade of pulp from spruce suitable for newsprint purposes and obtainable in high yield. The present paper reports the application of the process to several additional species of wood, the duplication of commercial standard newsprint, wrapping, and envelope papers from semi-sulphite pulps from these woods, and a comparison of the respective cost of sulphite and semi-sulphite pulps.

The aim of the Forest Products Laboratory in developing this process of pulping is an improved utilization of wood. Standard sulphite pulping methods return 45 to 50 per cent of the wood substance as pulp, practically pure cellulose; the remainder of the wood substance is discarded as waste liquor. The objective of the semi-sulphite process is to produce a pulp having similar properties to standard sulphite but containing much higher proportions of non-cellulosic substance, namely, lignin. In other words, to produce a pulp of 65 or 75 per cent yield instead of a 50 per cent yield. Such a product fulfills the main objective of improved wood utilization and has the further advantage of lower manufacturing cost. Moreover, it improves stream conditions in the vicinity of sulphite mills by decreasing the organ content of the waste liquor.

Outline of the Process

The semi-sulphite process consists essentially of the following steps: First, charging of the digester as usual; second, thorough penetration below or at 110° C. with the usual sulphite pulping chemicals; third, a mild cook produced either by lowering the concentration of chemicals, lowering the ratio of chemical to wood, lowering the temperature, pulping for a shorter time, or any combination of the above; fourth, discharging and thorough washing; fifth, rod milling[3] the softened chips in to individual fibers. The pulp is then ready for the usual beating, milling, and paper-making operations.

The yields may be varied according to the acid concentration, ratio of chemical to wood temperature, and the time employed. It appears that up to a yield of 60 per cent by weight there would be but little trouble in blowing the contents of the digester. At higher yields, however, there would probably be some difficulty and those mills equipped for gravity discharge would be advantageously situated to produce high yield semi-sulphite pulp.

Probably the most important step in the foregoing procedure is the penetration period. Under no circumstances should this period be slighted. On the contrary, it should be prolonged. It is the ample penetration period that makes possible the production of a uniformly softened material. When a semi-sulphite digestion is properly carried out, even with yields as high as 75 per cent by weight, no hard centers or burned cores are found and the wet softened chips can be disintegrated between the palms of the hands.

Comparison of Sulphite and Semi-Sulphite Pulp

In comparing a high yield semi-sulphite paper with one made from ordinary "quick-cook" sulphite, the following generalizations have been found to hold thus far. Bursting and tensile strength are more easily developed and increase to a higher maximum in the semi-sulphite paper. The tearing strength is likely to be somewhat lower. The folding strength is about the same, sometimes higher and sometimes lower. The freeness is likely to be somewhat lower, the porosity likewise. Owing to the lower porosity the sheetage per ton may be less. The sheet is appreciably harder, takes a higher finish, is considerably stiffer, and is less permanent. The color is not greatly different immediately after the sheet is made but degrades with time more than the ordinary "quick-cook" sulphite. In employing semi-sulphite pulp there are, therefore, certain advantages as well as disadvantages. It is obvious from the standpoint of use requirements, however, that certain types of sheets will be just as useful or perhaps more useful if larger amounts of the noncellulosic materials are left in the pulp.

Experimental Work

The work reported here includes semi-sulphite pulping tests upon white spruce, jack pine, balsam fir, eastern hemlock, black gum, and loblolly pine. The resulting pulps were employed in the production of newsprint, butchers fiber, and manila envelope papers, all of which commodities were successfully made, duplicating standard papers of the same grades.

Equipment

The pulping experiments were done in a semi-commercial sulphite digester.[4] Processing of the softened chips was accomplished by means of a 3 foot by 5 foot semi-commercial rod mill.[5] In a few instances the pulps were screened after treatment in the rod mill in order to remove the few remaining fiber bundles that had not been properly disintegrated. For this purpose a 0.012 inch diaphragm screen was used.

Cooking acid and schedules

The cooking acid used for the experiments was prepared by the usual Forest Products Laboratory method, utilizing liquid

TABLE 1
YIELD AND COOKING DATA FOR SEMI-SULPHITE PULPING TESTS

Cook No.	Species of wood	Acid composition: Total SO_2, per cent	Acid composition: Combined SO_2, per cent	Acid composition: Free SO_2, per cent	Oven-dry weight of chips, pounds	Volume of cooking acid added, gal./100 lb. chips	Total cooking time, hours	Time to 110°C., hours	Maximum temp., °C.	Yield of softened chips—Basis oven-dry weight of wood, per cent
3289	White spruce.....	3.55	0.85	2.70	75.5	62.5	6.0	2	132	75.5
3290	Eastern hemlock...	5.55	1.02	4.53	75.4	64.0	7.0	2	136	56.3
3291	Jack pine	5.50	0.95	4.55	75.4	62.0	6.5	2	135	73.8
3292	Loblolly pine	5.50	1.00	4.50	76.4	62.0	7.5	2	140	63.1
3337	Balsam fir	6.00	0.96	5.04	73.45	50.0	7.5	2	140	58.9
3342	Jack pine	5.94	1.04	4.90	76.3	55.0	7.5	2	140	65.8
3344	Black gum	5.90	0.98	4.92	85.0	55.0	7.5	2	138	58.8

* Presented at the annual meeting of TAPPI, Pennsylvania Hotel, New York, N. Y., Feb. 20, 1930. Acknowledgment is made to C. C. Heritage, formerly in charge of the Pulp and Paper Section, under whose direction this work was done.

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[2] The Semi-Sulphite Process. I. Preliminary Studies. Paper Trade J. 87, No. 17, 129-130 (1928).

[3] A rod mill has been used at the Forest Products Laboratory for the mechanical disintegration. There are other devices, however, that would perform the same work. Any standard attrition or shredding device should serve the purpose.

[4] Paper Trade J. 74, No. 15, 295-305 (1923).

[5] Paper Trade J. 83, No. 12, 53-54 (1926); 83, No. 24, 43-44 (1926).

sulphur dioxide and calcium hydrate. Acid concentrations varied from 3.55 to 6.00 per cent total sulphur dioxide and 0.83 to 1.16 per cent combined sulphur dioxide. The concentration of chemical and quantity used in each experiment are shown in Table 1. With only a few exceptions, the "straight line rise" temperature schedule reaching 110 deg. C. in 1.5 to 2 hours and continuing from that point to the maximum temperature was used for all cooks. The maximum temperature was varied, depending on the species and type of product desired. A gauge pressure of 75 pounds per square inch was maintained throughout each experiment, with a uniform relief period at the end of the digestion.

Excessive amount of acid remaining in the softened chips after blowing the charge have a tendency to discolor the final product. The softened chips were therefore washed with warm water.

Yield Determination

The yield of softened chips was determined by means of a hydraulic press. The softened chips, after pressing, were weighed and sampled for moisture. Knowing the weight of the softened chips when wet and their moisture content, the yield[6] of softened chips on the basis of the weight of the wood in an oven-dry condition was calculated.

Fiber Strength Development

The fiber strength development of the softened chips was determined by the pebble mill method used at the Forest Products Laboratory. One slight modification was made in the procedure in that the resulting stock after treatment in the pebble mill, was screened through a 0.012-inch cut diaphragm screen to remove any large bundles of fibers before being made up into handsheets. The softened chips were milled for various periods of time, ranging from 20 to 120 minutes. Bursting strength, folding endurance, and tearing strength tests were made on the hand sheets prepared for each period of milling.

Rod Mill Equipment

The rod mill equipment used for the mechanical disintegration of the softened chips at the Forest Products Laboratory is a 3 by 5-foot unit and is lined with rubber. A charge of 38 bronze rods, varying in size from 2½ to 3 inches in diameter and weighing approximately 3700 pounds, was used for all the processing trials. The mill was driven by a 15-horsepower motor at speeds varying from 26 to 27 r.p.m.

Commercial rod mills are operated continuously, the pulp or softened chips being fed into the trunnion of the mill by means of a screw conveyor or from a hopper and forced out of the opposite end of the mill by the entering material. The processing time is regulated by the rate of feed, consistence, and the speed of the mill. For the experimental tests on a commercial scale that are reported here, the mills were operated batchwise rather than continuously, by closing the ends. Samples of stock were removed at frequent intervals for testing.

Rod Mill Treatment of the Softened Chips

All processing of the softened chips was carried out at a consistence of 8 per cent. The period of milling was varied from 30 to 45 minutes for newsprint grades and from 15 to 30 minutes for the wrapping grades of semi-sulphite pulps.

[6] A slight loss in yield is suffered in processing the softened chips due to a small amount of lignin and other materials going into solution. This loss varies from 1 to 3 per cent.

TABLE 3
PROCESSING DATA ON SEMI-SULPHITE PULPS

Cook No.	Species of wood	Materials charged: Pulp: Wet weight pounds	Materials charged: Pulp: Oven-dry weight pounds	Materials charged: Water added pounds	Time in mill min.	Unit energy consumption: 3' x 5' mill operated batch-wise H.P. days per ton	Unit energy consumption: 6' x 12' mill operated continuous H.P. days per ton
3289	White spruce.	78.5	33.0	338.5	45	23.6	15.7
3290	Eastern hemlock ...	103.0	33.0	314.0	30	15.9	10.6
3291	Jack pine.....	80.5	33.0	336.5	30	15.9	10.6
3292	Loblolly pine.	79.0	33.0	338.0	30	15.9	10.6
3337	Balsam fir....	87.2	33.0	330.0	15	8.0	5.3
3342	Jack pine.....	86.6	33.0	330.5	30	15.6	10.4
3344	Black gum...	85.0	33.0	332.0	20	11.4	7.6

Power Consumption for Milling

The power consumed in reducing the softened fiber aggregates to pulp in the rod mill naturally vary with the degree of softening by cooking and the type of pulp desired. It has been previously established that a commercial rod mill 6 feet in diameter by 12 feet in length, running continuously, requires approximately twice the milling time of the experimental mill running batchwise but only about one-third the energy consumption required per ton of pulp processed in the Forest Products Laboratory 3 by 5 foot mill. These facts have been the basis for computing the energy requirements shown in Table 3.

Paper Making Experiments

In this series, as stated, paper making experiments were made to duplicate commercial newsprint paper as well as certain grades of wrapping paper, such as butchers' fiber and manila envelope. For newsprint furnishes, 25 per cent of semi-sulphite pulp and 75 per cent of commercial spruce ground-wood pulp were used. Beater furnishes for other grades varied, for example, 45 per cent of semi-sulphite pulp and 55 per cent of commercial spruce ground-wood pulp were used for duplicating manila envelope grades of paper, and 90 to 100 per cent of semi-sulphite and 0 to 10 per cent of spruce ground-wood pulp were used for butcher's fiber. The percentage of size, clay, and alum added to each furnish varied, as indicated in the table, for the type of paper made.

Evaluation of Papers

In order to obtain an idea of the use requirements of the grades of paper to be duplicated, physical tests were made on several commercial papers in each grade. The average of the results obtained on several United States and Canadian newsprint papers are shown in Table 4. Several samples of manila envelope papers were also tested as shown in Table 4. The furnish used in preparing the commercial papers were known and similar furnishes were used in duplicating them, substituting semi-sulphite pulp for regular sulphite pulp.

No distinction was made in evaluating butchers' fiber and manila or butchers' wrapping grades of paper. The average for these grades are also shown in Table 4.

Discussion of Results

The data on the commercial samples as well as those of the experimental papers are given in Table 4.

News Print

Strength data of the experimental news print papers were sat-

TABLE 2—FIBER STRENGTH DEVELOPMENT OF SOFTENED CHIPS BY PEBBLE MILLING

Cook No.	Species of wood	Bursting strength factor in pts./lb./ream after treatment in the pebble mill for: 20 min.	40 min.	60 min.	80 min.	120 min.	Folding endurance in double folds after treatment in the pebble mill for: 20 min.	40 min.	60 min.	80 min.	120 min.	Tearing strength factor in gms./lb./ream after treatment in the pebble mill for: 20 min.	40 min.	60 min.	80 min.	120 min.
3289	White spruce.....	0.55	0.88	...	1.08	...	43	217	...	603	...	1.11	1.31	...	1.09	...
3290	Eastern hemlock...	0.56	0.96	...	1.00	...	55	287	...	396	...	2.24	1.86	...	1.44	...
3291	Jack pine	0.61	0.82	...	0.94	0.99	28	107	...	185	181	1.15	1.18	...	0.84	0.85
3292	Loblolly pine	0.44	0.59	...	0.67	0.70	15	37	...	61	148	1.56	1.49	...	1.18	1.02
3337	Balsam fir	1.06	1.18	1.35	1.37	...	353	780	786	899	...	2.08	1.88	1.54	1.62	..
3342	Jack pine	0.72	0.94	1.03	0.97	...	146	272	207	303	...	1.32	1.43	1.24	1.07	...
3344	Black gum	0.31	0.60	0.77	0.82	...	7	47	147	190	...	1.01	1.64	1.78	1.67	...

isfactory, with one or two exceptions. Bursting strength was better in all cases than the average for commercial news print. Tearing strength was a little low on the papers produced using jack pine and loblolly pine semi-sulphite pulps.

With the exception of the product produced from loblolly pine semi-sulphite, the color of the experimental papers was as good as that of commercial news print.

BUTCHERS' FIBER

The papers produced for duplication of this type of paper gave strength values in most cases better than those obtained on the commercial samples. In one instance, where a 100 per cent black gum semi-sulphite pulp was used, the bursting strength was slightly lower than the average tests for the standard samples. The tearing strength values were better for the duplicated papers when eastern hemlock, balsam fir, and black gum semi-sulphite pulps were used, and a shade lower when jack pine pulp was used. In the jack pine, 10 per cent of ground-wood pulp was used which no doubt had some effect in lowering the tearing strength value.

The color of the duplicated papers was equal to that of the commercial samples when balsam fir, jack pine, and black gum semi-sulphite pulps were used, but somewhat darker when eastern hemlock pulp was used.

MANILA ENVELOPE

Very satisfactory tests were obtained on the papers made in duplicating standard manila envelope grades. For all practical purposes it can be said that the strength tests were equal in all respects to those of the commercial grades. The color of the untinted papers was also as good as that of the commercial samples. When balsam fir and black gum semi-sulphite pulps were used, the color was even better than that of the regular papers.

TABLE 5
COMPARATIVE COST DATA FOR PRODUCING SULPHITE AND SEMI-SULPHITE PULP

	Sulphite	Semi-sulphite	Remarks
Conversion			
Labor except milling	$2.10	$1.50	Shorter cooking cycle
Steam	3.50	3.00	Shorter cooking cycle
Power except milling	.90	.90	
Supplies	.20	.20	
Repairs	1.60	1.05	More pulp per digester
Rod mill labor	...	.50	
Rod mill power	...	3.00	Figured on the basis of 15 h.p. days per ton at $20 per h.p. day
Total conversion	$8.30	$10.70	
Raw materials			
Wood	$33.00	$25.00	Basis of 60 per cent yields of semi-sulphite pulp
Sulphur	3.00	2.00	Higher yield
Limestone	.50	.40	Higher yield
Total raw materials	$36.50	$29.40	
Fixed charges			
Fixed charges except rod mills	$3.80	$2.55	
Rod mills	...	1.30	4 rod mills[1] at $16,000 = $64,000 at 15 per cent for interest, taxes, insurance and depreciation
		$3.85	
Total pulp cost	$48.60	$41.95	

25 tons at $6.65 = $166.25 per day saving.
$166.25 × 300 = $49,875 per year.

[1] Four rod mills are necessary for a 25-ton mill, assuming an energy consumption of 15 horse power days per ton. Each rod mill using 100 horse power.

TABLE 6
BASIC VALUES USED IN COMPILING COST DATA IN TABLE 5

Pulpwood (Spruce)	
1. Weight in pounds per cubic foot oven-dry	24
2. Cubic feet per cord rough and green	90
3. Pounds per cord oven-dry	2,160
4. Pulp yield (per cent) by weight—standard sulphite process	46
5. Pulp yield (per cent) by weight—semi-sulphite process	60
6. Pulp pounds per cord oven-dry—standard sulphite	1,000
7. Pulp pounds per cord oven-dry—semi-sulphite	1,296
8. Cords per ton of pulp—standard sulphite	2
9. Cords per ton of pulp—semi-sulphite	1.5
10. Cord cost f.o.b. mill rough	$14.50
11. Wood room cost per cord	$ 2.00
12. Total wood cost per cord, chips in the bin	$16.55
13. Total wood cost per ton pulp, chips in the bin	$33.00
Sulphur (Item 8 x Item 12)	
14. Cost per ton f.o.b. mill	$21.00
15. Consumption pounds per ton pulp	284
16. Total sulphur cost per ton of pulp	$ 3.00
Limestone	
17. Cost per ton f.o.b. mill	$ 3.00
18. Consumption pounds per ton pulp	340
19. Total limestone cost per ton of pulp	.50

Comparative Sulphite and Semi-Sulphite Production Costs

Obviously the present state of development of the semi-sulphite process does not permit setting up hard and fast cost figures. However, a few remarks may be of interest relative to the savings that may be effected by employing semi-sulphite pulps. The principal saving obviously is in the wood cost. If it is assumed that rough wood delivered at the mill costs $10 per cord and $1.75 represents a fair wood room conversion cost, there would be a $26 wood cost on a 45 per cent yield by weight of pulp and an $18 wood cost on a 65 per cent yield. There is, therefore, a saving of $8 in this particular example. The next important matter is the shorter cooking cycle which results in decreased labor, steam consumption, and fixed charges. The process can be operated with lower concentrations of chemicals and consequently there are savings in sulphur and in limestone in addition to the savings as the result of increased yields. Against these savings there are fixed charges, such as maintenance, labor, and power consumption for the rod mills. A careful study of these charges shows that under normal conditions of wood cost there is a net saving of $3 to $6 per ton of sulphite pulp where the use requirements of the finished sheet will permit the inclusion of noncellulosic materials.

The assumed cost of the wood in the preceding paragraph is conservative. As it increases the advantage of the semi-sulphite process is more pronounced. A comparison, has therefore, been made of estimated costs of producing sulphite and semi-sulphite pulps of news print grade, assuming spruce wood at $14.50 per cord, which is the average figure given in recent reports of the Bureau of Census. The comparison is shown in Table 5. The

TABLE 4—PAPER MACHINE RUNS AND PHYSICAL PROPERTIES OF COMMERCIAL AND MACHINE MADE PAPERS

Type of paper	Cook No.	Species of wood	Paper machine run No.	Milling time min.	Beating time min.	Furnish: Semi-sulphite per cent	Furnish: Spruce ground-wood pulp per cent	Furnish: Size per cent	Furnish: Clay per cent	Weight per ream pounds	Physical properties: Bursting strength pts./lb./rm.	Physical properties: Tearing strength gms./lb./rm.	Physical properties: Folding endurance double folds
News print	3289	White spruce	16	45	15	25	75	0.4	1.5	32.8	0.39	0.72	...
News print	3290	Eastern hemlock	18	30	5	25	75	0.4	1.5	37.6	0.40	0.69	...
News print	3291	Jack pine	20	30	15	27	73	..	1.5	30.4	0.32	0.47	...
News print	3292	Loblolly pine	22	30	26	26.5	73.5	0.4	1.5	34.4	0.31	0.52	...
Butcher's fiber	3336	Eastern hemlock	97	30	30	100	..	3.0	0	43.0	0.55	1.23	121
Manila envelope	3337	Eastern hemlock	98	30	30	45	55	1.0	10	40.5	0.45	0.75	12
Btucher's fiber	3337	Balsam fir	114	15	30	100	..	3.0	0	37.5	0.96	1.15	644
Manila envelope	3337	Balsam fir	115	15	30	45	55	1.0	10	44.8	0.56	0.90	92
Butcher's fiber	3342	Jack pine	121	30	25	90	10	3.0	0	53.5	0.56	0.88	118
Butcher's fiber	3344	Black gum	124	20	15	100	..	3.0	0	48.0	0.43	1.56	36
Manila envelope	3344	Black gum	125	20	15	50	50	1.0	10	40.0	0.36	0.89	6
Commercial news print[1]	....	.....	..	..	..	..	..	..	..	32.0	0.28	0.74	...
Commercial manila envelope[2]	....	.....	..	..	..	..	..	..	..	44.8	0.40	0.85	6
Commercial butcher's fiber[3]	....	.....	..	..	..	..	..	..	..	43.0	0.49	1.03	65

[1] Average values for 18 samples of North American commercial news print.
[2] Average values for several samples of United States commercial manila envelope papers.
[3] Average values for several samples of United States butcher's fiber.

unit values used in the cost calculations are shown in Table 6. It is interesting to note that on the basis of but 25 tons per day of production an estimated net saving of more than $150 per day can be realized and that this differential can be increased if the wood cost is above the $14.50 quoted.

Summary

A series of experiments have been made using both coniferous and hardwoods for the production of semi-sulphite pulps suitable for several grades of papers, such as news print, wrapper, and manila envelope. The papers were made from pulp furnishes in which semi-sulphite pulps replaced the normal amount of sulphite pulp usually used. The yields obtained varied from 58.8 per cent to as high as 75.5 per cent. The strength data on the duplicated papers, with one or two exceptions, were equal to the average of tests obtained on similar commercial grades. The color of the duplicated papers, with but two exceptions, was as good as that of the commercial grades. The estimated cost figures on the production of semi-sulphite pulp as compared to sulphite pulp show an advantage in favor of semi-sulphite pulp.

TAPPI Notes

R. V. Holland, formerly electrical engineer with International Paper Company at Three Rivers, P. Q., is now with the Nichols Copper Company, Laurel Hill, N. Y.

John T. O'Reilly who was injured at the Cap Madeleine mill of the Canada Power and Paper Company is getting well rapidly in San Diego, California.

F. C. Ladd formerly superintendent of the Byron Weston Company at Dalton, Mass., is now with the Keith Paper Company in Turners Falls, Mass.

Vaino Nissinen, formerly chief chemist at the Bastrop mill of the International Paper Company is now with the Enso mill in Finland, and is visiting in the United States.

The Puget Sound Pulp and Timber Company of Washington has established an excellent record in relation to TAPPI. Following is an extract from a letter recently received from the Pacific Coast:

"As the new organization for the big Everett mill is developed I can properly state that I am sure that membership in TAPPI and the other technical organizations will be an important item in the list of qualifications of the men selected. Experience in selecting men for technical positions and for operative positions over many years and observation of the careers of such men indicates positively that the man who has interest and foresight enough to join and work in his technical organizations is the man who makes good. The men who put off the joining of their association or who give but indifferent support in nearly every instance turn out to be drudges or drones and therefore of not much use to an organization—the type who start low on the salary scale and who stay down. The workers in the associations are the men who get the promotions because they are the kind who keep themselves informed and are ready to make process improvements when the opportunity comes."

Whittlesey Paper Mill Sold

Windsor Locks, Conn., April 1, 1930.—The Whittlesey paper mill established in 1878 was sold at auction Wednesday to the Wyoming Valley Paper Mill of Northumberland, N. H., by the J. L. Smythe Company of Philadelphia for $14,500.

Representatives of the new owners stated that they plan to reopen the mill closed for about 18 months within a few months. The mill employs 50 hands at capacity. Under the late Frank H. Whittelsey the mill operated for many years in the manufacture of white and colored tissue copy paper. It has changed hands several times since. The equipment includes besides brick mill building, one paper machine and other machinery and 250 horsepower rights on the Connecticut River under a 999 years lease.

Technical Association Contributing Members

The following outstanding companies have recently been admitted as contributing members of the Technical Association of the Pulp and Paper Industry. Although most of these companies have cooperated with TAPPI from time to time there has not hitherto been any organized plan whereby the full technical service facilities of these companies could be put at the disposal of the pulp and paper industry. Under the present system each company is entitled to a representative in the Association who will act for his company in TAPPI affairs.

Johns-Manville, New York, N. Y. manufacturers of transite pipe, insulating materials and a wide line of asbestos products. C. George Dandrow is TAPPI representative.

E. D. Jones & Sons, Pittsfield, Mass., manufacturers of beaters, jordans, screens and other papermaking machinery since 1856, is represented by Almon A. Bush.

Lagerloef Trading Company, 52 Vanderbilt avenue, New York, N. Y., sole distributors in the United States, Canada, Cuba and Mexico of Finland pulps. Hans Lagerloef will be representative.

Lindsay Wire Weaving Company, 14025 Aspinwall avenue, Cleveland, Ohio, for 25 years manufacturers of spiral weave fourdrinier wires will be represented in the Technical Association by A. F. Crossman.

Mid-West Machine Company of Dayton, Ohio, manufacturers of high speed beaters and paper mill machinery, is represented by V. M. Knoll.

Minton Vacuum Dryer Corporation, Greenwich, Conn., makers of paper vacuum drying machinery. Ogden Minton will represent the company.

Magnuson Products Corporation, 55 Third street, Brooklyn, N. Y., manufacturers of chemical specialties and industrial cleaning compounds. S. M. Henderickson will be company representative.

Pusey & Jones Corporation, Wilmington, Del., manufacturers of pulp and papermaking equipment of all kinds will be represented by H. G. McDowell.

Texas Gulf Sulphur Company, 75 East 45th street, New York, N. Y., producers of sulphur will be represented by H. R. Wemple.

Several other companies have applied for membership in the Technical Association. Further announcement will be made in the Technical Section of the Paper Trade Journal. It is expected that eventually every supply and equipment manufacturer of any consequence serving the pulp and paper industry will be associated with the Technical Association as contributing members.

International Hydro-Electric System in 1929

The International Hydro-Electric System, a division of the International Paper and Power Company, has just published an extremely well-designed booklet describing its growth in 1929. The growth of the System's two subsidiaries, the New England Power Association and the Canadian Hydro-Electric Corporation, Limited, and the scope and magnitude of their operations are impressively reflected in this survey.

With a total installed capacity of 852,100 horsepower in its hydro-electric plants, and 477,500 horsepower in its steam-electric plants, the International Hydro-Electric System now ranks as one of the largest power organizations in the world. The 1929 output of electric energy of the plants now constituting the System was 31 per cent greater than in 1928 and four and one-half times their output ten years ago—1920.

The booklet is modern both in design and typography, the cover being especially striking. Ticonderoga Colonial offset paper is used in the cover and body of the survey. Copies of the booklet will be sent on request to the International Paper and Power securities, Incorporated, 100 East 42nd street, New York City.

A Study of the Bursting Strength Test*

By F. T. Carson[1] and F. V. Worthington[2]

It is most important that a test as widely used as the bursting test and as universally looked upon as a criterion of the strength of paper be standardized and freed as far as possible from sources of error. Because of the occurrence of frequent inconsistencies in the test results obtained with the testers used at the Bureau of Standards a study was made of a considerable number of factors which were thought to be possible sources of error. Some of the variables in the bursting test are inherent in the design of the tester, others proceed from inadequate calibration, care, and adjustment, while still others are rather phantoms of faulty interpretation than real sources of difficulty. The investigation included such matter as: nature of the clamp, pressure necessary to hold the specimen in place, effect of diaphragms, of speed of operation, of viscosity of the hydraulic medium, accuracy of pressure gauges, relation to the tensile test.

The investigation was confined largely to the ordinary type of bursting tester fitted with the lever clamp and having a capacity of about 160 pounds per square inch pressure. Because of the well-known variations in the properties of paper a considerable number of individual tests were made in order to obtain a trustworthy average, and the tests were distributed over the sheet in such a manner as to insure comparable tests for the different conditions studied. In most of the studies made each recorded result is the average of 20 tests. Comparaitve tests were made as nearly as possible at the same time, and, when conditions would permit, all comparative tests were completed on one sample before proceeding to the next. All tests were made under the standard hygrometric conditions as prescribed by the Technical Association of the Pulp and Paper Industry.

The Unit of Bursting Strength Measurement

Although the bursting pressure read on the gauge is in pounds per square inch, it is not customary to report the bursting strength of the paper in terms of this unit, but in "points," which unit may be defined as the pressure in pounds per square inch required to rupture a 1.13-square inch free circular area of paper exposed to a gradually increasing hydraulic pressure.

The reasons for this practice presumably are that the expression of the bursting strength in pounds per square inch might imply either (a) that the strength is referred to a cross sectional area of one square inch of the material, or (b) that one is at liberty to use any convenient testing area without discrimination. Neither of these implications is true in the case of paper. In the first place, it is customary to express the strength of paper in pounds per inch of width (or the metric analogue). But even if the strength of paper were ordinarily referred to a cross sectional area, the bursting pressure would not be a measure of the tensile strength. In the second place, a change in the size of the testing area is followed by a corresponding change in the bursting pressure for a given paper, the pressure being approximately inversely proportional to the diameter of the tested area. The nature of the tests herein reported upon, however, does not permit of expressing the results in the customary unit, the "point," since factors are being varied which in the commonly accepted meaning of "points" are considered as constant. Therefore, in most of the subsequent discussion the results will be expressed, not as "bursting strength" in "points," but as bursting pressure in pounds per square inch.

Clamping Pressure

One of the most important results of the investigation was the evaluation of the critical clamping pressure and the recommendations made for insuring adequate clamping of the specimen. If the specimen slips during the application of pressure the bursting result will be too high. That this should be so is evident from a well known engineering principle which will be discussed later in connection with the relation of the bursting test to the tensile test. The slipping of the specimen increases the curvature of the portion of the paper under stress, as a consequence of which a greater pressure is required to break the paper than would normally be required. It is felt that a great deal of bursting data has been vitiated by the lack of sufficient clamping pressure, and that many errors and discrepancies in bursting results which are commonly attributed to other causes are in reality attributable to insufficient clamping pressure. Judging from the condition of many testers which have been examined it seems not improbable that a majority of the 160-pound bursting testers in use are unfit, owing to inadequate clamping pressure, for testing papers having a bursting strength greater than about one half of the capacity of the tester. Such a deficiency, however, may be readily remedied.

Since clamping pressure is applied to the specimen through a lever actuated by a spring, it is possible to evaluate this pressure approximately by calibrating the spring. The critical clamping force was found by determining the least compression of the spring which would hold the paper from slipping. From this depression and the calibration of the spring the required clamping force was evaluated. In this way it was found that a pressure corresponding to a load of about 1000 pounds is required to insure against slipping in the case of the 160-pound tester. The area of the clamping surfaces apparently has very little to do with gripping efficiency, the secure clamping of the paper depending rather upon the total force applied to the clamp.

A simple procedure for adjusting the clamp pressure, which should prove adequate in most cases, does not require the actual calibration of the clamping spring. A very strong paper with a smooth, hard surface is selected—one which will be as difficult to hold in place as any which is likely to be tested. A number of bursting tests are made, the clamping lever being brought only part way down for the first burst and a little farther down for each succeeding burst, until a position of the lever is found for which the paper ceases to slip during the bursting test. During the first few tests made in this way the edges of the sheet will probably move with a wavy motion as a result of slipping. If much slipping occurs wrinkles will be found at periphery of the bursting orifice. As pressure is increased for the successive bursts by bringing the clamping lever farther down each time a position should be found for which the edges of the specimen no longer move during the test. With the clamping lever in this position, the length of clamping spring is carefully measured. The lever in then brought entirely down to its usual clamping position and the spring is adjusted (by placing one or more washers under it if necessary) until it is compressed at least 1/16-inch more than it was when measured for the critical pressure position. In some cases it may be necessary to place a washer under the spring to begin with in order to find the critical pressure. If a weak spring is thus indicated it may be advisable to replace it with a new one. The operator should watch carefully at all times for any movement of the unclamped margin of the specimen and assure himself that the clamping pressure is great enough, otherwise the results are

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* Presented at annual meeting of TAPPI, Pennsylvania Hotel, New York, N. Y., February 18, 1930.

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[2] Laboratory Apprentice, Paper Section, Bureau of Standards, Washington, D. C.

[3] The value of the "point" as used in connection with the bursting test is somewhat indefinite because the area of the bursting orifice in the different types of testers in use varies from about 1.13 to 1.23 square inches. It is here defined in terms of the type of tester being studied, the bursting orifice of which has an effective diameter of 1.20 inches.

likely to be too high. Any such results obtained on specimens which slip during the test should be discarded.

Diaphragm Installation

Experiments were made with the rubber diaphragms by installing them in different manners alleged to give rise to error. They were installed tight and loose, with and without air underneath Exhaustive tests were made to determine the effect of these differences. No significant effect could be found, a fact not surprising, since the diaphragm error in any case is small for this type of tester.

Speed of Operation

Experiments were also made to determine the effect of the speed at which the bursting tester is operated. Slow, medium, fast, and irregular speeds were tried when testing various kinds of paper. Although extensive tests were made there could be found no effect due to reasonable variations in speed of sufficint significance to indicate the necessity of regulating very exactly the speed of operation of bursting strength testers.

Viscosity of Hydraulic Medium

Experiments were made to determine whether or not the viscosity of the hydraulic medium, glycerine, used in the testers has any appreciable effect. The behavior of the bursting tester was observed when using three different liquids, glycerine, ethylene glycol, and water. The data did not indicate any lag in the response of the pressure gauges due to the viscosity of the glycerine.

Pressure Gauges

Some study was made of pressure gauges to determine possible sources of error traceable to them. Studies were made of the calibration of gauges and of their sensitivity. Perhaps the most fruitful source of error in the case of the 160-pound gauge is the poor spacing of the unit graduations which often negatives the calibrations made for the neighboring major subdivisions.

Clamping Head and Size of Opening

Considerable attention was given to the clamping device in this investigation. Snyder had already found the all-metal type of clamp superior to the rubber ring type in both clamping efficiency and permanence of characteristics. The tendency to deteriorate with age and the likelihood of being scored or rounded on the edge are well known characteristics of the rubber ring, which can be remedied by replacing it with a metal orifice plate. When, however, comparative tests were made of the metal and rubber orifice plates having orifices reamed to the same size, 1.24 inches in diameter, it was found that the results obtained with the all-metal clamp were invariably somewhat lower than those obtained with the clamp fitted with the rubber ring. This circumstance was rather disconcerting at first for it appeared as if it would be necessary to make the orifice of the metal plate smaller than that in the rubber ring in order to make the two agree in the bursting results, a thing which seemed illogical and undesirable in view of the standards of the Technical Association of the Pulp and Paper Industry, which had been drawn in conformity with the rubber-ring type of clamp which has been in use many years. However, it had been overlooked that when the rubber ring is under clamping pressure it closes up slightly as a result of the compression of the rubber and its consequent intrusion into the orifice. Therefore, a clamp, fitted with a new rubber ring, the bursting orifice of which had a diameter of 1.24 inches in conformity with the Technical Association's specification for the burstng tester, was subjected to normal clamping pressure and the orifice diameter was then found to be 1.20 inches. This brought out the fact that the actual working diameter of the orifice in the rubber ring when it is under pressure as in a bursting test is not 1.24 inches, but 1.20 inches. When a metal plate having an orifice of this size was substituted for the rubber ring it was found to give satisfactory agreement with the rubber-ring type of clamp. The results of the comparative tests of the rubber and metal orifice plates are shown in Table 1. Each result in this table is the average of from 40 to 100 individual bursts. These data show that the metal orifice plate having

TABLE 1
COMPARISON OF RUBBER AND METAL BURSTING ORIFICES

Paper	Bursting pressure — Rubber orifice * Lbs./in.²	Metal orifices — 1.20 in. diameter Lbs./in.²	1.24 in. diameter Lbs./in.²	Difference Per cent
Writing	16.6	16.5	16.3	1.2
Bond	39.9	39.0	37.9	2.8
Bond	60.7	61.4	59.3	3.4
Ledger	53.8	53.2	52.7	0.9
Ledger	67.2	65.9	65.1	1.2
Kraft	63.1	59.9	59.0	1.5
Rope manila	79.7	78.8	77.0	2.3

* The nominal diameter of the orifice in the rubber orifice plate is 1.24 inches, but under clamping pressure this orifice was found to close up to an actual diameter of about 1.20 inches.

an orifice 1.20 inches in diameter is a satisfactory performance duplicate of the rubber orifice plate which, when under compression, also has an effective orifice diameter of 1.20 inches. They also show that the metal orifice plate having an orifice 1.24 inches in diameter consistently gives results somewhat lower than for the rubber orifice plate or the equivalent metal orifice plate. However, it is evident that this difference is not great and that a change of a few hundredths of an inch in the diameter of the orifice will produce an error in the bursting results of about the order of magnitude of differences often found in duplicate tests. As a result of this study the all-metal tripod, having a bursting orifice 1.20 inches in diameter was recommended as a satisfactory and proper substitute for the unsatisfactory rubber-faced clamping head which has been used on the ordinary type of bursting tester having a maximum capacity of about 160 pounds per square inch bursting pressure.

This study has brought out the fact that there are in common use today bursting testers having three different sizes of bursting orifice, namely, 1.20, 1.24, and 1.25 inches in diameter. This is somewhat unfortunate but is not as bad as it might seem, because these bursting testers also have diaphragm error of different magnitudes which rather overshadow the effects poduced by different orifice sizes. It happens, as a matter of fact, that the testers having the larger orifices have also the larger diaphragm errors. The larger orifice size has the effect of decreasing the bursting result, whereas the larger diaphagm error has the effect of increasing it. As a net result the different styles of testers come nearer agreement than if all had orifices of the same size. This compensation, however, is not perfect and the different styles of testers are not strictly comparable. This disparity among existing testers makes the writing of specifications for standard methods rather difficult in the case of the bursting test. It should be recognized, however, that the bursting test, can not be made a precision test so long as it is necessary to have the present magnitude of diaphragm error. Until a means is provided for eliminating this error it seems rather pointless to lay undue emphasis upon the exact size of the bursting orifice.

Correlation of Bursting and Tensile Results

Some years ago one of the authors suggested a means of correlating bursting and tensile data by the use of a well known engineering formula which states that when pressure is applied within a spherical shell the product of pressure and radius of curvature is equal to twice the tensile stress per unit width on the material composing the spherical shell. Although there is some uncertainty about the paper specimen in a bursting test being developed into a true spherical segment, the form of the surface is apparently nearly enough spherical to permit of the use of the formula in attempting to correlate bursting and tensile data. This equation is

$$PR=2T$$

in which P is the bursting pressure, R is the radius of curvature, and T is the tensile breaking strength per unit width in the machine direction of the paper, was used rather successfully in correlating bursting and tensile data. Two auxilliary equations were required for expressing the measurable quantities in terms of the quantities in this equation.

In order to determine the elongation of the paper in the bursting test a deflection recorder was devised and attached to the bursting

tester as shown in the illustration. The quantity thus measured was necessary in order to determine the radius of curvature of the specimen at the time of rupture.

From data obtained with the bursting tester thus equipped could be calculated the tensile breaking strength (machine direction), from data obtained with the tensile tester could be calculated the bursting strength, and from the bursting strength and tensile strength could be calculated the elongation of the paper in the machine direction. Thus a triple check on the validity of using this formula was had with the data obtained. How well the calculated values correspond with experimental values is shown in Table 2. With a few exceptions the agreement is in general as good as that in duplicate expermental determinations.

This same equation suggests a means of correlating bursting results obtained with bursting testers having bursting orifices of different sizes, provided of course that all other conditions are the same for the different testers. The product of bursting pressure and the radius of curvature of the specimen at the time of rupture is constant for a given paper and equal to twice the tensile breaking strength. In the case of testers having bursting orifices of different sizes the ratio of radius of curvature to orifice diameter would be constant for a given paper, since the elongation at rupture is a constant of a given material. Hence the product of bursting pressure and orifice diameter should be constant for a given paper. No bursting testers were availbale which had orifices much different in size. The use of washers with different sizes of holes is not a fair test because the stretch of the paper under such contions is not confined to the curved area. The only pertinent experimental data obtained were those of Table 1 in which the two metal clamping heads were used. From the above relation it could be predicted that the results obtained with the 1.24-inch orifice would be 3.2 per cent lower than those obtained with the 1.20-inch orifice. The values in the last column of this table should be compared with this figure.

FIG. 1
Recording device for determining the vertical deflection of the paper specimen in the bursting test.

Table 2.—Relation of bursting and tensile results

Kinds of paper	Tensile breaking strength, mach. dir., Lbs./in.	Calculated value of T from P & V, Lbs./in.	Tensile breaking strength, cross dir., Lbs./in.	Bursting pressure, Lbs./in.²	Calculatel value of P from T & E, Lbs./in.²	Vertical deflection in bursting test, Inches	Elongation at rupture, mach. dir., determined from V, Per cent	Elongation at rupture, mach. dir. from tensile test, Per cent	Elongation at rupture, mach. dir., calculated from P & T, Per cent	Elongation at rupture, cross dir., Per cent
	T	T_b		P	P_t	V	E_b	E	E_a	
Writing	18.3	17.6	9.3	17.7	16.1	0.093	1.5	1.1	1.4	3.7
Bond	33.5	29.3	17.5	39.3	45.9	.126	3.0	3.1	2.1	5.8
Bond	43.2	38.5	22.4	59.3	69.1	.147	4.0	4.4	3.1	7.9
Ledger	35.4	36.8	22.4	53.3	53.3	.137	3.5	3.8	3.8	5.7
Ledger	51.4	50.9	30.9	64.4	68.5	.118	2.6	2.9	2.5	6.4
Kraft	45.4	45.8	21.2	55.8	55.7	.114	2.4	2.4	2.4	5.7
Rope manila	67.4	65.9	18.6	85.0	89.9	.121	2.7	2.9	2.6	7.8

The correlation of data made possible by this formula involving bursting and tensils results suggests the following very interesting conclusions:

(1) The bursting strength is determined by the tensile breaking strength and the elongation at rupture in the machine direction.

(2) The cross direction properties of paper do not appreciably influence the bursting test.

(3) If any two of the three properties, tensile breaking strength (machine direction), bursting strength, and elongation at rupture (machine direction) are known, the other can readily be calculated.

(4) Nothing is measured by the bursting test which could not be determined by the tensile test.

(5) The bursting test measures the strength of paper in the stronger direction only and is therefore inadequate for the sepecification of the strength of many types of paper.

(6) Values for the elongation at rupture, which are frequently not recorded in tensile tests, may be calculated if the bursting strength is known.

(7) Data obtained with different bursting testers, which are comparable in all respects except for size of bursting orifice, may be correlated on the thesis that the bursting pressure for a given paper is inversely proportional to the orifice diameter.

Matching Colors in the Laboratory*

By C. C. Schneider[1]

Many mysteries are still to be found in the coloring of paper and only a very few rules hold good at all times on each grade of stock, and in every mill. The greatest uncertainty you will always find in the question "What will the color do or how will she behave?" This you must know first, before you begin actually to match the shade of color you desire. Color manufacturers furnish this information, but it is not safe practice to rely blindly upon this information because your local conditions of equipment and stock may be unknown to him.

It is, therefore, best for every mill to work out its own case.

What are the different points now to be answered? The principal ones will be enumerated:

1. Fastness to (a) light (b) heat (c) water (d) chlorine (e) alkali (f) acid (g) rubbing.
2. Strength and shade
3. Affinjty to the various paper making fibres.
4. Two-sidedness
5. Solubility
6. Mode of application, as for example whether the color wants to be added to the stock before or after size and alum.

* Presented at the annual meeting of TAPPI, Pennsylvania Hotel, New York, N. Y. Feb. 20, 1930.

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The above will represent the main points to be found out and after you do know them one will be able to select the proper color for the work on hand.

Color Matching Equipment

The equipment necessary for the matching of colors in the laboratory is familiar to a good many of you, still many others are not familiar with the same. I will, therefore, give a short description of it.

First of all mixers are needed, from three to any number depending upon the amount of work you have to do in this line. The mixers are built into one frame and consist of brass plates, making about 75 r.p.m. As containers one quart enamel cups answer very well. Next in order are some stone crocks with covers which serve as a storage for beaten pulp on which the color is to be matched.

For the color solutions use one quart glass stopped bottles. Pipettes are needed for measuring out the color to the pulp in the enamel cups, all graduated and ranging from 1 to 50 cc in capacity. Finally some equipment for making handsheets must be at hand.

Color Matching Procedure

A pulp or a mixture of pulps is chosen as near as possible to the pulp used in the actual making of the paper. Next determine by test how much of the wet, beaten pulp has to be taken in order to have three or five grams of dry stock. Weigh out the needed amount of stock for each cup, adding 100 cc of water and put the cups with the stock and water in the mixing apparatus. From your stock solutions of color, which are made up of 1 gram of color to 1000 cc of water, for soluble colors and 10 grams of color to 1000 cc of water for earth colors or other insoluble colors, use as many cc as you think are needed to produce the desired shade, add rosin size and alum and after running in the mixer ½ hour with a soluble color and 1 to 1½ hours with an insoluble color, take out the stock making your handsheet and dry it on a hot plate. Compare your handsheet with the sample to be matched and calculate the next step to be made in order to match the color.

In calculating this step get used to doing this on a percentage basis as this is the best way to do this. After the sample is matched, the amount of color needed for a 1000 pound beater can easily be calculated from the amount of stock and the number of cubic centimeters from each color taken. From the tables given below the amount of color needed for 1000 pounds of dry stock is readily read off. Table I is to be used when five grams of stock have been used in the laboratory and Table II if three grams of dry stock have been used. When determining from the tables the amount to be used in a 1000 pound beater it is best to use the 25 per cent reduced column for soluble colors and the 50 per cent reduced column for insoluble colors, as the beater develops the colors much better than the Laboratory mixer.

TABLE I

BASED ON FIVE GRAM COLOR SAMPLE AND 1000 POUNDS OF AIR-DRY PAPER

Solutions Cubic Centimeters	lb.	oz.	25 per cent reduced lb.	oz.
0.05	..	1/8	..	1/8
0.1	..	1/4	..	1/4
0.15	..	1/2	..	3/8
0.2	..	5/8	..	1/2
0.25	..	3/4	..	6/10
0.3	..	1	..	7/10
0.35	..	1 1/8	..	8/10
0.4	..	1 1/4	..	1
0.45	..	1 1/2	..	1
0.5	..	1 3/4	..	1 1/4
0.75	..	2 1/2	..	1 3/4
1.	..	3 1/4	..	2 1/2
1.25	..	4	..	3
1.5	..	4 3/4	..	3 1/2
1.75	..	5 1/2	..	4 1/4
2.	..	6 1/2	..	4 3/4
2.25	..	7 1/4	..	5 1/2
2.50	..	8	..	6
2.75	..	8 3/4	..	6 1/2
3.	..	9 1/2	..	7 1/4
3.25	..	10 1/2	..	7 3/4
3.50	..	11 1/4	..	8 1/2
3.75	..	12	..	9
4.	..	12 3/4	..	9 1/2
4.25	..	13 1/2	..	10 1/4
4.50	..	14 1/2	..	10 3/4
4.75	..	15 1/4	..	11 1/2
5.	1	..	..	12
6.	1	3 1/4	..	14 1/2
7.	1	6 1/2	1	1
8.	1	9 1/2	1	3
9.	1	12 3/4	1	5 1/2
10.	2	..	1	8

TABLE II

BASED ON THREE GRAM COLOR SAMPLE AND 1000 POUNDS OF AID DRY PAPER

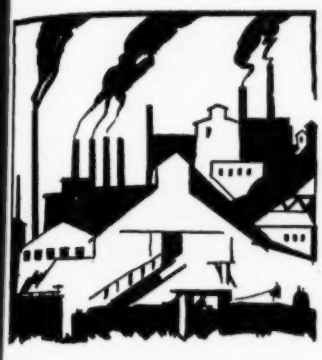
Solution Cubic Centimeters	Unreduced oz.	Reduced 25 per cent oz.	Reduced 50 per cent oz.
0.05	1/4	1/8	1/8
0.1	1/2	1/4	1/4
0.15	3/4	1/2	3/8
0.2	1	3/4	1/2
0.25	1 1/4	1	3/4
0.3	1 1/2	1 1/4	1
0.35	1 3/4	1 1/2	1 1/8
0.4	2	1 3/4	1
0.45	2 1/2		1 1/4
0.6	2 3/4	2	1 3/8
0.55	3	2 1/4	1 1/2
0.5	3 1/4	2 1/2	1 5/8
0.65	3 1/2	2 3/4	1 3/4
0.7	3 3/4		1 7/8
0.75	4	3	2
0.8	4 1/4	3 1/4	2 1/4
0.85	4 1/2	3 1/2	2 3/8
0.9	4 3/4	3 3/4	2 1/2
0.95	5		2 5/8
1.	5 1/4	4	2 3/4
1.05	5 1/2		2 7/8
1.1	5 3/4	4 1/4	3
1.15	6	4 1/2	3 1/8
1.2	6 1/4	4 3/4	3 1/4
1.25	6 1/2	5	3 3/8
1.3	6 3/4		3 1/2
1.35	7	5 1/4	3 5/8
1.4	7 1/2	5 1/2	3 3/4
1.45	7 3/4	5 3/4	3 7/8
1.5	8	6	4
1.55	8 1/4		4 1/4
1.6	8 1/2	6 1/4	4 1/4
1.65	8 3/4	6 1/2	4 3/8
1.7	9	6 3/4	4 1/2
1.75	9 1/4	7	4 5/8
1.8	9 1/2		4 3/4
1.85	9 3/4	7 1/4	4 7/8
1.9	10	7 1/2	5
1.95	10 1/2	7 3/4	5 1/8
2.	10 3/4	8	5 1/4
2.05	11		5 3/8
2.1	11 1/4	8 1/4	5 1/2
2.15	11 1/2	8 1/2	5 5/8
2.2	11 3/4	8 3/4	5 3/4
2.25	12	9	5 7/8
2.3	12 1/4		6
2.35	12 1/2	9 1/4	6 1/4
2.4	12 3/4	9 1/2	6 3/8
2.45	13	9 3/4	6 1/2
2.5	13 1/4	10	6 5/8
2.55	13 1/2		6 3/4
2.6	13 3/4	10 1/4	6 7/8
2.65	14	10 1/2	7
2.7	14 1/2	10 3/4	7 1/4
2.75	14 3/4	11	7 3/8
2.8	15		7 1/2
2.85	15 1/4	11 1/4	7 5/8
2.9	15 1/2	11 1/2	7 3/4
2.95	15 3/4	11 3/4	7 7/8
3.	1 lb.	12	8
3.15		12 1/2	
3.25		13	
3.4		13 1/2	
3.5		14	
3.65		14 1/2	
3.75		15	
3.9		15 1/2	
4.		1 lb.	

Again, when starting to match the color in the beater it is best to start even 20 per cent below the above amount as you can more easily add more color to the stock than to take some out. In conclusion of this paper I would like to make a few suggestions:

Always add the basic color last.

Never use more than three colors in matching a shade, only occasionally when in an emergency four colors may be used but this should be avoided as much as possible.

When matching a color make only one change at the time in order to be able to get a correct interpretation of the effect of this change. Finally, always take as a base color one nearest in appearance to the one to be imitated, in order to make a certain shade of brown use a brown. It will take then only a small amount of one or two more colors to secure the right shade.



SECTION OF THE
COST ASSOCIATION OF THE PAPER INDUSTRY
Affiliated with
THE AMERICAN PAPER AND PULP ASSOCIATION
Edited by Thos. J. Burke C.A. Sec.-Treas.

What Is Surplus?*

By Louis G. Peloubet

Basic conditions of surplus are contrasts; opposites, as supply and demand; more of one thing than required. Conformably, commercial surplus is more net assets than required to equal the capital stock. The surplus is the excess net assets—not the balancing figure which shows the amount by which the dollar value of net assets exceeds the face value of capital stock. On a condensed balance-sheet we have a net-assets figure, a capital-stock figure and a resultant surplus figure. The surplus exists irrespective of this figure.

Standard dictionaries define corporate surplus as excess of net assets over par of capital stock—perhaps a tinge of technical significance but meaning no more than the word does in everyday talk. There is reason in so limiting the word in balance-sheet use, for when we say the total surplus is conglomerate and attempt to divide and separate the total we not only are inconsistent but at times face complications and difficulties almost, if not quite, insuperable. The factors from which we derive surplus are assets, liabilities and capital stock. If a portion of the assets can be offset against a portion of the result of the whole the dictionary definition is wrong. To set apart a portion of surplus against some one asset implies equality, the antithesis of surplus. To keep surplus to its proper place as a balancing figure, a mathematic, is to be consistent.

Few Statements of Absolute Fact

Few statements of absolute fact are possible on a balance sheet. In one figure, surplus is an exact statement of fact; separated, it is almost certain not to be. United it stands, divided it falls. As Mr. Justice Holmes said in Edwards v. Chile Copper Co. (270 U. S. 452) "we can not let the fagot be destroyed by taking up each item of conduct separately and breaking the stick. The activities and situation must be judged as a whole."

A noun is the name of a thing. It is difficult to conceive of surplus as a thing of itself. It has no qualities, color, size or shape. Having surplus cash you haven't surplus, you have cash; surplus energy is not more surplus than you need but more energy. Surplus is meaningless until related to some *thing*. The word seems by its very nature to be adjectival, or at most, a pronoun.

Many Court Definitions

Many courts have found occasion to define the word, and of these definitions the pronouncement of Mr. Justice Brandeis in Edward v. Douglas (269 U. S. 204) is perhaps the best:

"The word 'surplus' is a term commonly employed in corporate finance and accounting to designate an account on corporate books. ——The surplus account represents the net assets of a corporation in excess of all liabilities including its capital stock. This surplus may be 'paid-in-surplus,' as where the stock is issued at a price above par; it may be 'earned surplus,' as where it was derived wholly from undistributed profits; or it may, among other things, represent the increase in valuation of land or other assets made upon a revaluation of the company's fixed property."

As to banker's surplus, in Leather Mfrs. Nat. Bank v. Treat (128 Fed. 262), the court says, "When the statute uses it, it does so with reference to the particular class of bankers to which alone it is applicable, and means the fund created by corporate or quasi-public institutions as an addition to or reinforcement of the share capital."

Banks do not differentiate surplus, they segregate a portion of it. With them the word has an accepted technical meaning which does not apply in corporation accounting. The bank separates its surplus into fluid and static, holding one available for dividends and the other not. That division is purely arbitrary—in no way based upon the origin of the surplus and is analogous to the corporation stock dividend.

The Interstate Commerce Commission's theory seems to be that while there is only one surplus it is divisible into two general classes by more or less arbitrary appropriation. That is, the commission attaches greater importance to destination than origin; to what is done with increment rather than to how it arose.

The National Association of Railway and Utilities Commissioners, terming surplus "profit and loss," define it as "The collective title for a small group of accounts which form the connecting link between the income account and the balance sheet. Its principal function is to explain changes in the corporate surplus or deficit during a given fiscal period as affected, first, by the net results of all the transactions reported at the income account; second, by appropriations of surplus for specific purposes made at the option of the accounting company; and third, by special and unusual transactions or adjustments such as are not regularly recorded in the income account."

Three Descriptions of Surplus

Accounting authorities seem to regard as important three descriptions of surplus;

1—That measuring the amount of assets available for distribution in dividends (one authority would have the word "surplus" used only in this way.)

2—That which measures the dollar value of unnamed assets assumed to be isolated to a specified use or purpose.

3—That which indicates the source or origin of extraordinary increments (regardless to whether the assets indicated are present, in original or changed form, or have long since disappeared.)

As to point 1, in separating surplus to show what is available for dividends do we mean:

A—Legally,

* The Journal of Accountancy, Nov., 1929.

B—Physically (dependent on availability of cash or other asset for distribution), or

C—Practically (as a matter of policy; what the directors consider wise and justified)?

No one of these has any necessary relation to the balance remaining over from earnings; not only earned but paid-in, capital surplus, etc., being legally available; physical surplus having no significance apart from available assets and the uncertainties of determining what is practically available being obviously no fit subject for certification.

Must not we, therefore, abandon the idea that earned surplus necessarily has any connection with, or bearing upon, dividends?

Earned surplus does not tell what has been earned; what has been paid in cash dividends; what has been capitalized in stock dividends; the proportion of dividends to earnings; what legally may be paid out in dividends; what practically remains subject to dividends; what the directors regard as subject to dividends. If the balance-sheet figure of earned surplus speaks at all it is of something other than these things, for certainly here it is silent.

What, then, does it say? No more than to show what earnings have not been distributed, and that only if it is clearly known what really are earnings and only if dividends paid from other sources are excluded.

If "earned" were here an informative qualifying word it would have significance, but it is a negative qualification; it shows something which has not been done, not something which will be done; it is a limitation—not an exposition—and it fails to distinguish between the different limitations on dividends. Earned surplus is left over *from* dividends; not *for* dividends. Since surplus is the whole thing, no added, connected, qualifying word can enlarge it; additions must be restrictive.

Remains Genuine Surplus

Regarding point 2, differentiation to show appropriation or impounding is more feasible because based on definite and readily ascertainable grounds, as the will or inclination of the directors. Thus a banker's surplus is clear-cut and well understood. But, however assigned or earmarked, it remains genuine surplus and the utmost balance-sheet separation, which gradually may be given it, is to group it as:

Surplus—		
Appropriated	$100	
Unappropriated	50	
		$150

preserving the integrity of the one surplus figure.

When a part of surplus is segregated in qualification of an asset it is a reduction—not a separation—of surplus. A needed reserve, of course, is not surplus at all.

Concerning point 3, separation of surplus on the balance-sheet to show *how* the assets were acquired, nothing interent in the word warrants or justifies using it to denote source or origin; it rather denotes a present state.

If appropriate to speak of a balance-sheet, as is often done, as a picture of a situation at a given instant of time, then like all pictures it can show only present existence—never source. A photograph takes the features as they are; why or whence does not register in the camera.

If we definitely adopt this view, even the simplest condensed make-up of surplus commonly shown on a balance-sheet:

Surplus—		
Balance at beginning of year	$100	
Add: net income of the year	30	
	$130	
Deduct: dividends paid	20	
		$110

is illogical and out of place. As a present picture we must conclude that no such presentation of surplus is permissible, that the one total figure of surplus is the only true balance-sheet figure and with that the balance-sheet is complete. With no surplus figure at all the picture would not be disturbed except mathematically.

The source of an asset neither determines nor indicates its money value or its useful worth. If you have a worn-out motor-car that is what you have, whether purchased with your own hard-earned money or a gift from your father-in-law.

Important Information Excluded

But under this view important information is excluded from the balance-sheet, and restrictive innovation in balance-sheet construction is to be well considered and adopted with caution. Yes, but, first, all this information, and more, can be submitted in a surplus account statement supporting the balance-sheet figure, and, second, much of the information could be retained in the balance-sheet without offending the above conception. For example, if we had this situation:

Cost of plant and equipment	$1,000	
Excess of appraised value of plant and equipment over cost	100	
Cost of inventory	400	
Excess of cost of inventory over market value		$30
Cost of marketable securities	500	
Excess of market value of securities over cost	40	
Cash	200	
Share capital outstanding in stock certificates		1,000
Amount of cash contributed at organization		100
Premium received on capital stock sold for cash		100
Appreciation surplus		110
Total earnings, less total dividends paid		900

it would properly enough appear in the picture thus:

Plant and equipment, at cost (appraised value $1100)	$1,000	
Inventory, at cost (replacement value $370)	400	
Marketable securities, at cost (market value $540)	500	
Cash	200	
Capital stock		$1,000
Surplus (of which $.... is legally available for dividends)		1,100

This offends no balance-sheet principle; in each instance the two figures are present views but from a different angle, a photograph taken in two positions.

To tag each asset or group of assets with "acquired through operation," "contributed by stockholders," etc., would show the source, but the fact that to keep this up is clearly outside the realms of the possible only serves to show how equally difficult it is to express the same thing by figures on the liability side of the balance sheet.

The Simplest Form of Corporate Status

The simplest form to which corporate status can be reduced is expressed in two figures:

Net assets	$10,000
Number of capital shares outstanding	100

These consist of three main elements:
Possessions (property and rights owned)
Obligations (rights owing)
Ownership (stockholders' equity)
of which the most concrete balance-sheet expression would be:

Total assets	$15,000
Total liabilities	5,000
Proprietorship	10,000

In dividing and re-dividing these three we face the first problem of a balance-sheet expression—to what extent is division informative, practicable, reasonable and logical; not how much can we find to say, but how little and say it all. Good balance-sheet construction is a matter of compression. That a balance-sheet should be made as full, clear and explicit as possible needs no argument, but how to achieve it, is quite another matter. Of this one thing only are we certain, that wealth of detail is far from the correct answer.

Proprietorship of One Indivisible Nature

It is first to be noted that while assets and liabilities are divisible according to their nature (character, condition, situation, relation, use, etc.) proprietorship is of one indivisible nature and can be separated only as to form; that portion which is formally fixed in representative shares and that which is not. Surplus is not a thing in the sense that ownership is; it is an arbitrary division of the latter; it may be increased or decreased at will. Ownership is fixed, alike with assets and liabilities. We can not change the true value of cash by writing it up or down, nor if we truly owe John

Smith $100 do we reduce that obligation by transfer to an account of another name.

For a balance-sheet we set down on a sheet of paper words descriptive of, and figures representing things, rights and obligations. As a fact exhibitor the sheet is then complete, it shows all the stockholders have and all they owe, but it is unsymmetrical and incomplete mathematically. We add the par value of capital stock and still it is mathematically lacking, so we add a figure and make it a *balanced* sheet. That correlative and reciprocal figure is a complement, an adjunct, and we call it surplus, with a meaning akin to the legal "surplusage" which "implies that the superfluous matter is such that its omission would not impair the true meaning nor the right of the party."

The saying "surplus cannot be bought" rests squarely on the fact that it is a figure and a figure is not a marketable product.

Surplus of the commonest origin arises from the commercial exchange of an asset from terms of cost into another in terms of greater money value.

	We have at one date	At a later date	And at a still later date
Merchandise	$100	....	....
Accounts receivable	....	$150	....
Cash	....	....	$147
Capital stock	100	100	100

This is complete as to the facts—we owned merchandise, sold it, and the purchaser discounted payment—but incomplete for our purpose. By force of necessity as well as for reasons of convenience we want more; we need a balance figure to prove each step of the transaction, and it is convenient to know what the resultant balance figure represents. **These are clearly two distinct things.** We insert the balance figures arbitrarily and we keep a separate historical record of how the gain arose, thus:

Sales	$150
Cost	100
	$ 50
Cash discount	3
	$ 47

If we refuse to believe the $47 is nothing more than a balancing figure and feel it must have other significance, the furthest we can get is, that it is a measure of the gain. The gain itself is in cash. The balance figure is analogous to the pound weight in a scale which on the opposite side supports a pound of butter. The weight represents the butter only in terms of avoirdupois—and so the net income represents the excess of assets only in terms of dollars.

Repeated Incomes Produce Surplus

The transaction produces income and repeated incomes produce surplus. Surplus, of course, comes about in other ways too, exchange of goods for goods, assets received gratuitously, liabilities forgiven, or natural increase, but however it arises it is always the same in principle and in the last analysis an increase in net assets.

Commercial surplus, broadly speaking, is generated:

1—By forces within the organization;
  A—through specific operation—earnings
  B—acquired by other efforts—specific or due to the organization's progress and improvement
2—By forces without the organization;
  A—contributed by nature—natural increase
  B—contributed by man-assets paid-in, liabilities remitted or by general progress and improvement.

Any and all such increment settles into increase in net assets.

If, then, surplus can not be anything in and of itself other than a balancing figure we must dismiss the idea that a consecutive history of transactions is or has any relation to surplus and regard such history as the story of the changes in net assets which happens, by reason of our adoption of the perfect-balance idea, to end with the surplus figure.

We can not escape the fact that the balance-sheet is an arrival, not a history, nor the other fact that the history of an enterprise is of prime interest and importance. Nor the third fact that the two are fundamentally different and not mergeable.

Stream of Transactions and Occurrences

Surplus is a stream of transactions and occurrences sounded by the balance-sheet; their relative positions thus:

We leave Syracuse in the early morning and all day long travel leisurely along a broad smooth highway, now overhung with rocks, now arched with shading trees, past shiny little lakes, along racing brooks and at dusk come to Erie. Those are our impressions and remembrances. In balance-sheet form we were "at Syracuse in the morning, at Erie at night."

Suppose the story of a given enterprise to be this:

The organizers paid in assets for capital stock whose value exceeded par of the stock by	$100
The company prospered and earned from operation	500
This enabled it to sell further stock at a premium of	50
The company found a part of its land and buildings no longer needed for successful operation and sold them for an amount in excess of depreciated cost value of	300
It then had the plant appraised and found the book cost less than appraised cost by	25
	$975
It then retired the preferred stock at a premium of	30
	$945
Paid a stock dividend of	200
	$745
And paid cash dividends of	100
Leaving the difference between the dollar value of net assets and par of outstanding stock at the balance-sheet date	$645

A Sale Unit of Production

Can we condense that story into two or three figures on the balance sheet and lose nothing of it? Or shall we, by separate surplus account, report all that happened during the year, the earnings, dividends thereon, dividends from other sources, various increments of other origin than earnings, etc.? Or go even further and, on the theory that a business has only the one true period of operation—from its inception to its close—make the surplus account cover the elapsed portion of that period? For example, let us take a business having a sole unit of production such as a brewery or an oil-producing company—perhaps the latter as more becoming at present.

	From organization (Jan. 1, 1919) to Dec. 31, 1927, 9 years	Year ended Dec. 31, 1928	Total for 10 years
Barrels of oil sold	3,370	170	3,540
Sales of oil	$3,590	$180	$3,770
Cost of oil sold	1,788	101	1,889
	$1,802	$ 79	$1,881
Depreciation	337	17	354
	$1,465	$ 62	$1,527
Deduct: federal taxes (income capital stock)	83	5	88
	$1,382	$ 57	$1,439
Deduct: interest paid	16	4	20
Net income	$1,366	$ 53	$1,419
Premium on capital stock issued for convertible bonds	....	100	100
Realized from sale of capital assets	50	10	60
Surplus paid in at organization	100	....	100
	$1,516	$163	$1,679
Dividends declared	1,200	50	1,250
Credit balance of surplus account per balance sheet	$ 316	$113	$ 429

Of Secondary Importance to Stockholders

Is not undue significance now given to the balance-sheet and too little to the surplus and income account? Although the balance-sheet is in the foreground of financial statements it is of secondary importance to the stockholder unless it shows values from a producing, as well as a security, viewpoint; he is mainly interested in earning power and dividend probabilities. We can even imagine a stockholder's contentment with some such balance-sheet as this:

	Assets	Liabilities
Permanent assets, necessary working capital and management.....	Power to earn annually $ per share	
Cash and its equivalent not needed in the business	$1,000,000	
Stockholdings		10,000 shares

In practice surplus is differentiated on the balance-sheet:

1—In words and figures—by separating the total figure into parts and to each part attaching appropriate wording which
   A—admits the parts are surplus—as earned, paid-in, capital, appropriated, etc.
   B—Ignores that the parts are surplus—as reserves for dividends, contingencies, insurance, etc.
2—In words only—by showing only the one total figure but desribing it as earned, free, corporate, etc.

Lest the reader think this question of showing surplus on the balance sheet purely academic, consider the following terms expressive of surplus taken from a handful of 1928 reports of industrials picked at random:

Surplus
Surplus account
Profit and loss
Profit-and-loss surplus
Profit-and-loss balance, being excess of assets over liabilities
Net worth
General surplus
Accumulated surplus
Further surplus
Earned surplus
Free surplus
Surplus—appropriated
Surplus—unappropriated
Corporate surplus appropriated
Corporate surplus unappropriated
Capital surplus
Paid-in surplus
Special surplus
Property surplus
Surplus arising from appreciation of properties
Reserve for dividends
Reserve for contingencies
Insurance-account surplus

Clearly, then, it is a proper question to bring before the bar of accounting opinion for discussion. We know little of the forces which impel a people to clothe its words in that precise meaning essential to the intelligible interchange of thought and idea, but we do know, as the great Burke has said, that "Writers, especially when they act in a body and with one direction, have a great influence on the public mind."

May Differ as To Means

Accountants of one mind in desiring to make the balance sheet full, clear and explicit may yet differ as to the appropriate means to that end; different roads may conscientiously be traveled to reach a common goal, but the road must reach that goal or we wander in by-paths. A balance-sheet which does not carry the intended impression fails to register and falls short of its goal. A balance-sheet, like a quarrel, takes two to make it effective. One must give it out in form and language such as the other will take in.

As concerns the public, our financial statements are the finished product and by them are we judged. To seek uniformity, shun technicality and speak in words generally understood, may be heretical doctrine for a profession, but a very young one can afford to depart, might even be commended for departing, from the ingrained practice of the older professions in that respect.

Pacific States Pulp & Paper Co. Financing

PORTLAND, Ore., March 29, 1930.—Pacific States Pulp & Paper company continues to progress in its financing plans according to announcement of A. T. Peterson, executive vice-president, who recently announced a proposed $1,500,000 mill for Priest River, Idaho. A public offering of $530,000 of the preferred and common stocks is now under way. A 20-acre site has been secured on the Great Northern and Pend d'Oreille river where the company intends to erect the 100 ton sulphate plant.

The announcement further states that investments contemplated by the company include purchase of the Beadmore sawmill properties at Priest River at a valuation of $400,000, half of which will be paid in cash and the other half in stock. The company will also acquire lime deposits on Pend d'Oreille lake valued at $264,467, a lime quarry to cost $50,000 and a waterfront mill site at Aberdeen, Wash.

The company also has contracts to buy wood waste from the Panhandle Lumber company.

State Aid in Reforestation

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., April 1, 1930.—Reforestation budgets for Jefferson, Lewis and St. Lawrence counties for the coming year have been filed with the State Conservation Department and range from $3,000 to $5,000, according to announcement by Herbert F. Prescott, secretary. Reports show that Jefferson county has appropriated $3,000 for the purchase of abandoned farm lands for reforestration purposes while Lewis county has appropriated a similar sum. St. Lawrence county, which is characterized here as a pioneer in reforestration work, has appropriated $5,000 this year.

In accordance with a law recently passed and subject to the approval of the Conservation Commission of the various budgets the state will match the sums appropriated by the Northern New York counties for this work. More than one-third of the counties in the state are availing themselves of state aid in reforesting, the maximum appropriations allowed under the law being $5,000. Besides contributing financially to the counties' forestry work the state through the Conservation Department is prepared to furnish trees free and to give technical advice in the purchasing of abandoned farm lands for this purpose.

The annual report of the Conservation Department recently issued contains an excellent illustration of one of the early reforestation plantations made under the Merritt law in 1909 in the town of Potsdam, St. Lawrence county, by E. A. Merritt, Jr., author of the law. Four separate views of the 800 acres of planted forests by the village of Carthage are also contained in the report which is issued in book form.

A listing of community forestry projects in the state in 1929 indicates that Canton has 140,000 trees planted; Carthage 851,000; Croghan 5,000; Gouverneur 22,500; Jefferson county 20,800; Lewis county 151,000; Malone 390,100; Newton Falls 22,500; Ogdensburg 1,150; St. Lawrence county 130,000 and Watertown 59,000.

It is also planned to expand the state forestry school of Syracuse University as a result of the approval of a bill by Senator Fearon authorizing the exchange of certain real property in Syracuse owned by the state and the university. The exchange is authorized in order to provide additional space for the state forestry college. Another bill approved by the governor permits the sale of state lands in Madison county now held for the purposes of state college of forestry and no longer suitable for such purposes.

An Interesting Bit of Paper

William D. Judd, president of the Carew Manufacturing Company, South Hadley Falls, Mass., has sent the PAPER TRADE JOURNAL a rather unusual paper exhibit. This exhibit is a notice of the annual meeting of the stockholders of the Carew Manufacturing Company, held January 15, 1930, and is printed on old Blue Paper taken from an old sample cabinet of the company, which shows that the stock was made in March, 1851. It is needless to say that it is all rag and in this day of rag content exploitation, this exhibit is obviously unusually interesting.

The Carew mill started business in 1848 and is the oldest going paper mill in the Connecticut Valley, antedating any of the Holyoke mills.

Westvaco Inspirations for Printers

The West Virginia Pulp and Paper Company, with headquarters at 230 Park Avenue, New York, has just published Westvaco Inspirations for Printers, Series of 1929. The volume is handsomely bound and profusely illustrated. It contains many beautifully colored reproductions of the work of celebrated artists and is printed on the various Westvaco mill brand papers.

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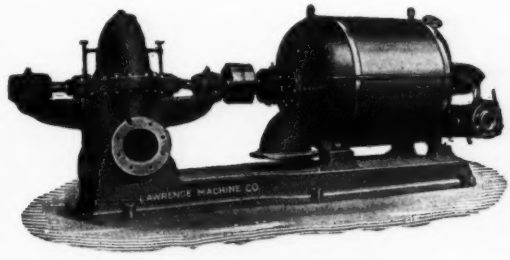

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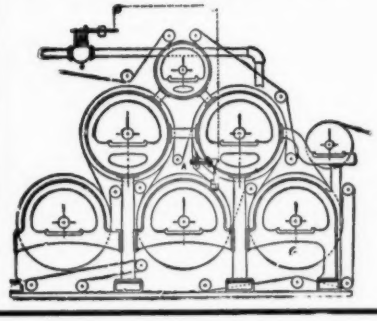

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IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MARCH 29, 1930

SUMMARY

Cigarette paper .....178 cs.
Wall paper .....19 bls., 26 cs.
Paper hangings ..... 46 bls., 17 cs.
News print .....6875 rolls
Printing paper .....100 cs.
Wrapping paper .....17 bls., 132 cs.
Packing paper .....100 bls., 88 cs.
Filter paper .....4 cs.
Drawing paper .....6 cs.
Colored paper .....108 cs.
Crepe paper .....5 cs.
Gallic paper .....1 cs.
Decalcomania paper .....91 cs.
Baryta coated paper .....129 cs.
Surface coated paper .....208 cs.
Velvet paper .....3 cs.
Tissue paper .....1 cs.
Metal paper ..... 2 cs.
Photo paper .....2 cs.
Writing paper .....2 cs.
Stencil paper and ink .....32 cs.
Cover paper .....3 cs.
Caoutchouc paper .....8 cs.
Pattern books .....120 cs.
Straw paper .....53 rolls
Miscellaneous paper .....48 cs.

CIGARETTE PAPER

M. Spiegel & Sons, Hamburg, Hamburg, 17 cs.

De Manduit Paper Corp., Vincent, Havre, 111 cs.

Liggett & Myers Tobacco Co., Andania, Liverpool, 50 cs.

WALL PAPER

Irving Trust Co., Hamburg, Hamburg, 16 cs.

———, Hamburg, Hamburg, 5 bls.

Globe Shipping Co., Hamburg, Hamburg, 6 bls.

F. J. Emmerich, Hamburg, Hamburg, 5 bls.

F. J. Emmerich, Arabic, Liverpool, 3 bls.

A. C. Dodman, Jr., Inc., Olympic, Southampton, 6 cs.

J. E. Bernard & Co., Olympic, Southampton, 4 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Minnetonka, London, 38 bls., 13 cs.

A. C. Dodman, Jr., Inc., Arabic, Liverpool, 7 bls.

International F'd'g. Co., Ile de France, Havre, 3 cs.

Whiting & Patterson Co., Inc., Olympic, Southampton, 1 bl., 1 cs.

NEWS PRINT

Perkins, Goodwin & Co., Hamburg, Hamburg, 42 rolls.

———, Stavangerfjord, Oslo, 417 rolls.

———, Berlin, Bremen, 149 rolls.

Perkins, Goodwin & Co., Cleveland, Hamburg, 487 rolls.

W. H. Bell & Co., Markland, Liverpool, N. S., 5427 rolls.

Parsons & Whittemore, Inc., Berengar, Bremen, 282 rolls.

A. S. Zabriskie, G. Washington, Hamburg, 71 rolls.

PRINTING PAPER

Steffens, Jones Co., Berlin, Bremen, 8 cs.

Oxford University Press, Arabic, Liverpool, 14 cs.

G. W. Sheldon & Co., Ascania, Southampton, 5 cs.

F. L. Kramer & Co., Ascania, Southampton, 1 cs.

G. W. Sheldon & Co., Olympic, Southampton, 3 cs.

T. N. Fairbanks Co., Augustus, Genoa, 69 cs.

WRAPPING PAPER

Walker, Goulard, Plehn Co., Cleveland, Hamburg ,17 bls.

Sylvania Industrial Corp., Westernland, Antwerp, 23 cs.

Sylvania Industrial Corp., Samland, Antwerp, 88 cs.

Standard Products Corp., Samland, Antwerp, 21 cs.

PACKING PAPER

American Express Co., Hamburg, Hamburg, 31 cs.

M. Harrison Co., Cleveland, Hamburg, 57 cs.

J. P. Heffernan Paper Co., Samland, Antwerp, 100 bls.

FILTER PAPER

H. Reeve Angel & Co., Inc., Minnetonka, London, 4 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., Minnetonka, London, 3 cs.

Schenckers Inc., Berlin, Bremen, 1 cs.

Keuffel & Esser Co., G. Washington, Hamburg, 2 cs.

COLORED PAPER

J. E. Bernard & Co., Berlin, Bremen, 2 cs.

Quality Art Novelty Co., Berlin, Bremen, 7 cs.

S. Gilbert, Berlin, Bremen, 67 cs.

H. Lange, Berlin, Bremen, 5 cs.

F. L. Kramer & Co., Berlin, Bremen, 19 cs.

Borden Riley Paper Co., Westernland, Antwerp, 3 cs.

Borden Riley Paper Co., Samland, Antwerp, 5 cs.

CREPE PAPER

R. J. Godwin Sons, Cleveland, Hamburg, 5 cs.

GALLIC PAPER

Keuffel & Esser Co., Ascania, Southampton, 1 cs.

DECALCOMANIA PAPER

C. W. Sellers, Hamburg, Hamburg, 29 cs.

C. W. Sellers, Berlin, Bremen, 9 cs.

L. A. Consmiller, Berlin, Bremen, 8 cs.

B. F. Drakenfeld & Co., Arabic, Liverpool, 30 cs. (Duplex); 15 cs. (Simplex).

BARYTA COATED PAPER

J. H. Schroeder Banking Corp., Berlin, Bremen, 50 cs.

Globe Shipping Co., Berlin, Bremen, 79 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Westernland, Antwerp, 28 cs.

Gevaert Co. of America, Westernland, Antwerp, 34 cs.

Gevaert Co. of America, Samland, Antwerp, 91 cs.

P. Puttmann, Samland, Antwerp, 55 cs.

VELVET PAPER

Tamm & Co., Samland, Antwerp, 3 cs.

TISSUE PAPER

R. F. Fisher & Bro., Andania, Liverpool, 1 cs.

METAL PAPER

F. J. Schleicher, G. Washington, Hamburg, 2 cs.

PHOTO PAPER

J. J. Gavin & Co., Olympic, Southampton, 2 cs.

WRITING PAPER

Guibout freres, Olympic, Southampton, 2 cs.

STENCIL PAPER AND INK

Arlac Dry Stencil Co., Hamburg, Hamburg, 32 cs.

COVER PAPER

Int'l. F'd'g. Co., Hamburg, Hamburg, 3 cs.

CAOUTCHOUC PAPER

American Express Co., Hamburg, Hamburg, 8 cs.

PATTERN BOOKS

W. H. S. Lloyd & Co., Minnetonka, London, 120 cs.

STRAW PAPER

American Express Co., American Farmer, Hamburg, 53 rolls.

MISCELLANEOUS PAPER

Draeger Shipping Co., Cleveland, Hamburg, 2 cs.

P. J. Schiwetzer, Ile de France, Havre, 3 cs.

G. Gennert, Ile de France, Havre, 2 cs.

Japan Paper Co., Ile de France, Havre, 11 cs

H .D. Catty & Co., Samland, Antwerp, 1 cs.

Keller Dorian Paper Co., Olympic, Southampton, 10 cs.

Japan Paper Co., Augustus, Genoa, 19 cs.

RAGS, BAGGING, ETC.

A. W. Fenton, Inc., Hamburg, Hamburg, 57 bls. rags.

Intl. Germanic Trust Co., Hamburg, Hamburg, 155 bls. rags.

Draper & Co., American Farmer, London, 56 bls thread waste.

Franklin & Co., American Farmer, London, 24 bls. thread waste.

Darmstadt, Scott & Courtney, American Farmer, London, 62 bls. bagging.

A. W. Fenton, Inc., American Farmer, London, 71 bls. rags.

N. Y. Trust Co., Minnetonka, London, 36 bls. rags.

Darmstadt, Scott & Courtney, Minnetonka, London, 40 bls. rags.

N. Y. Trust Co., Berlin, Bremen, 31 bls. rags.

Chemical Bank & Trust Co., Berlin, Bremen, 105 bls rags.

Intl. Germanic Trust Co., Cleveland, Hamburg, 51 bls. rags.

V. Galaup, Vincent, Dunkirk, 104 bls. rags.

Forte, Dupee, Sawyer, Wytheville, Antwerp, 91 bls. rags.

E. Butterworth & Co., Inc., Wytheville, Antwerp, 87 bls. bagging.

E. J. Keller Co., Inc., Wytheville, ———, 62 bls. rags.

J. Cohen Son Co., Andania, Liverpool, 17 bls. rags.

M. Snedeker Corp., Andania, Liverpool, 74 bls. thread waste.

Darmstadt, Scott & Courtney, Bellflower, Manchester, 121 bls. paper stock.

Castle & Overton, Inc., Bellflower, Manchester, 38 bls. rags; 63 bls. bagging.

Equitable Trust Co., Berengar, Bremen, 45 bls. rags.

———, Berengar, Bremen, 32 bls. rags.

S. Birkenstein & Son, Coelleda, Dublin, 72 bls. rags.

———, G. Washington, Hamburg, 167 bls. rags.

E. J. Keller Co., Inc., Estrella, ———, 186 bls. rags.

Intl. Germanic Trust Co., Estrella, Valencia, 86 bls. rags.

Intl. Germanic Trust Co., Estrella, Barcelona, 52 bls. rags.

Chemical Bank & Trust Co., Estrella, Barcelona, 94 bls. rags.

Bank of New York, Estrella, Barcelona, 27 bls. cotton waste.

E. J. Keller Co., Inc., Francisco, ———, 160 bls. flax waste.

E. J. Keller Co., Inc., City of Alton, ———, 68 bls. rags.

E. J. Keller Co., Inc., N. Amsterdam, ———, 132 bls. rags.

OLD ROPE

Brown Bros. & Co., Westernland, Antwerp, 50 bls.

CASEIN

Kalbfleisch Corp., Southern Cross, B. Ayres, 419 bags.

Atterbury Bros., Inc., Southern Cross, B. Ayres, 1667 bags.

A. Hurst & Co., Southern Cross, B. Ayres, 593 bags.

T. M. Duche & Sons, Southern Cross, B. Ayres, 834 bags.

WOOD PULP

Bulkley, Dunton & Co., Brabant, ———, 8653 bls. wood pulp, 1730 tons.

Castle & Overton, Inc., Hamburg, Hamburg, 681 bls. wood pulp, 102 tons.

Castle & Overton, Inc., Cleveland, Hamburg, 735 bls. wood pulp, 110 tons.

Manufacturers Trust Co., American Farmer, Hamburg, 102 bls. sulphite, 20 tons.

Atterbury Bros., Inc., Stavangerfjord, Oslo, 500 bls. wood pulp.

(Continued on page 80)

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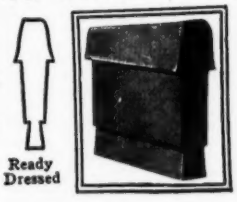

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Imports of Paper and Paper Stock

(Continued from page 78)

National City Bank, G. Washington, Hamburg, 286 bls. sulphite, 58 tons.

WOOD FLOUR

B. L. Soberski, Stavangerfjord, Frederickstad, 4500 bags.

BOSTON IMPORTS

WEEK ENDING MARCH 29, 1930

Bulkley, Dunton & Co., Brabant, ———, 3250 bls. wood pulp, 650 tons.

Bulkley, Dunton & Con., Wytheville, ———, 675 bls. wood pulp, 135 tons.

1st Natl. Bank of Boston, Wytheville, Antwerp, 29 bls. paper stock.

Baring Bros. & Co., Wytheville, Antwerp, 4 bls. paper stock.

American Express Co., Wytheville, Antwerp, 75 rolls paper.

E. Butterworth & Co., Inc., Wytheville, Antwerp, 159 bls. flax waste.

R. Bishop Manfg. Co., Wytheville, Antwerp, 100 bls. rags.

Train Smith Co., Wytheville, Antwerp, 367 bls. rags.

NORFOLK IMPORTS

WEEK ENDING MARCH 29, 1930

E. J. Keller Co., Inc., Tomalva, ———, 62 bls. rags.

NEW ORLEANS IMPORTS

WEEK ENDING MARCH 29, 1930

Guaranty Trust Co., De La Salle, Havre, 156 bls. rags.

HOUSTON IMPORTS

WEEK ENDING MARCH 29, 1930

———, De La Salle, Havre, 630 bls. bagging.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 29, 1930

H. Reeve Angel & Co., Inc., Wytheville, Antwery, 2 cs. wrapping paper.

Perkins, Goodwin & Co., Wytheville, Antwerp 22 cs. printing paper.

F. Weber & Co., Wytheville, Antwerp, 29 cs paper.

Phila. National Bank, Wytheville, Antwerp, 487 bls. rags.

G. W. Miller & Co., Wytheville, Antwerp, 10 bls. thread waste.

E. J. Keller Co., Inc., Berengar, ———, 351 bls. wood pulp.

Chemical Bank & Trust Co., Berengar, Hamburg, 127 bls. wood pulp.

J. Andersen & Co., Berengar, Bremen, 442 bls. wood pulp.

E. Mayer, Berengar, Bremen, 151 bls. rags.

———, Berengar, Bremen, 277 bls. rags.

Intl. Acceptance Bank, Berengar, Bremen, 51 bls. rags.

Irving Trust Co., Berengar, Bremen, 39 bls. rags; 57 bls. bagging.

National Shawnut Bank, Berengar, Bremen, 49 bls. rags.

J. A. Steer & Co., Berengar, Bremen, 76 bls. rags.

E. H. Silberman, Berengar, Bremen, 9 bls. rags.

Union Waste Co., Berengar, Bremen, 44 bls. rags; 30 bls. bagging.

Intl. Germanic Trust Co., Berengar, Bremen, 419 bls. rags.

Bulkley, Dunton & Co., Berengar, ———, 2100 bls. wood pulp.

Intl. Germanic Trust Co., Estrella, Barcelona, 89 bls. rags.

Tradesmans National Bank, Estrella, Barcelona, 111 bls. rags.

Phila. National Bank, Estrelal, Barcelona, 443 bls. rags; 80 bls. cotton waste.

Bank of New York, Estrella, Barcelona, 90 bls. rags.

E. J. Keller Co., Inc., Estrella, ———, 220 bls. rags.

E. J. Keller Co., Inc, Exilona, ———, 55 bls. rags.

E. J. Keller Co., Inc., Vego, ———, 50 bls. rags.

E. J. Keller Co., Inc., Burgerdyk, ———, 87 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING MARCH 29, 1930

Congoleum Nairn Co., Vincent, Havre, 78 bls. rags.

United Rag & Paper Exchange, Vincent, Dunkirk, 26 bls. rags.

I. P. Co. Experiments on Core Paper

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., March 31, 1930.—Experiments in the making of core paper are being carried on at the local branch of the International Paper Company and indications point to the production of this product on a large scale in the near future. It is believed that eventually core paper may become one of the principal products of the mill. Improvements are also being made to equipment. A new wet end has been installed on one machine while new cylinders are also being installed on six of the Oliver continuous filters. The work is progressing slowly and will result in a large increase in production when completed.

Probably no other mill operated by International has more orders on hand at present than the local branch where there is no roll stock on hand. As fast as the product is turned out at the mill it is trucked into box cars and dispatched to waiting customers. Rumors that the company was considering the building of a new dam are believed to have little credence in view of the recent completion of the Conklingville project in which the firm is interested.

Strength of Cellophane Tested

Following the requests of certain manufacturers of cellophane, the Bureau of Standards in Washington, D. C., has been conducting tests of the strength of this material.

Some difficulty has been encountered by the breaking of the paper when used for wrapping candy boxes and other articles. A number of tests were made on the bursting strength tester, but owing to the large amount of stretch in the paper, this test proved unsatisfactory. The impact tester was tried on single and double thicknesses of the paper, but the results were considered too erratic. The McLaurin gummed tape tester was then tried and although the results were not very consistent, the principle of this machine was thought very satisfactory as it appeared to duplicate as nearly as possible the service conditions to which this paper is subjected. With some modification it might serve the purpose satisfactorily.

Schroon River Seeks Lower Cost Rates

[FROM OUR REGULAR CORRESPONDENT]

WARRENSBURG, N. Y., March 31, 1930.—The Schroon River Pulp and Paper Company seeks an immediate readjustment of freight rates on coal from the anthracite fields of Pennsylvania and the bituminous mines of West Virginia to this place in order to compete with mills in Corinth, Glens Falls and Plattsburg, according to objections filed with the Interstate Commerce Commission by Examiner A. J. Sullivan. In his report the examiner stated that competitors of the local concern are favored by the existing rates.

The examiner reports that rates to Warrensburg have been in effect for a considerable period without readjustment and that the company cannot compete with other mills in this district because of the high rates on coal. He recommended that the rates be adjusted similar to those in effect from the coal fields to Ticonderoga, that rate having been decreased some time ago. The report states that consideration has been given the longer route over which coal must be hauled to Warrensburg over the Adirondack branch of the Delaware & Hudson but states that the rate, twenty-three cents higher than to Glens Falls, Corinth and Plattsburg, is unreasonable.

Paper Bag Institute Elects Officers

The Paper Bag Manufacturers Institute, which was recently formed to take the place of the Paper Bag Manufacturers Association, has elected the following officers: President, John N. Harvey, vice-president, Advance Bag and Paper Company, 38 Newbury street, Boston, Mass.; Vice-President, Walter M. Crunden, president ot Crunden-Martin Manufacturing Company, St. Louis, Mo.; Secretary, Hugh Wright, 11 West 42nd street, New York. The Executive Committee consists of the president and vice-president, together with J. L. Stille, vice-president, Continental Bag and Paper Corporation, New York; E. E. Brown, general manager, Lawrence Bag Company, Middletown, Ohio; B. Mints, president, Trinity Bag and Paper Company, New York; Alex Calder, vice-president, Union Bag and Paper Corporation, New York.

Lowest Pulpstone Costs are obtained with

EMPIRE PULP STONE

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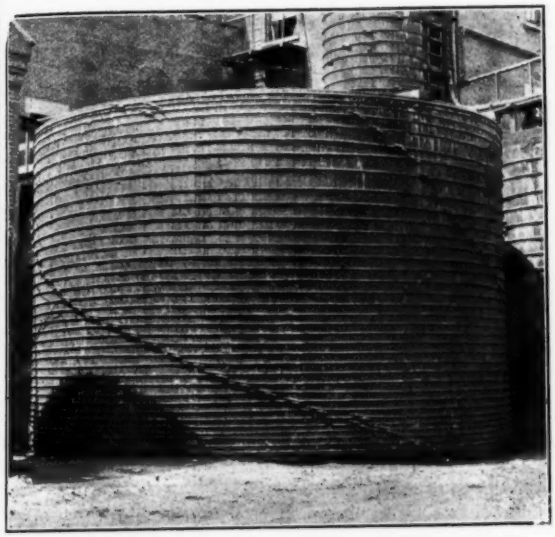
THE SMALLWOOD STONE CO.
STEUBENVILLE, OHIO

IN USE
SINCE 1898

Quarries
EMPIRE, OHIO
OPEKISKA, W. VA.

WOOD TANKS TILE



Blow Pit and Vomit Stack at Marathon Paper Company Mill.

NO TANK is too large and none too small for our tank-making equipment and stocks. We cater to the needs of the paper industry. Blow Pits, Vomit Stacks, Stock Tanks, Acid Storage Tanks, Stuff Chests, Agitators, etc. See our Condensed Catalog in Paper and Pulp Mill Catalog. Ask us about our Glazed Tile Tanks.

Tank Builders Since 1867

KALAMAZOO TANK AND SILO CO.
KALAMAZOO, MICHIGAN

USED BY MILLS MAKING OVER 80% OF THE COUNTRY'S PAPER

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COMMERCIAL ALUM — C M C — IRON FREE ALUM

St. Regis Paper Company

Daily Capacity, 525 Tons

Newsprint
Catalog and Directory
Packers Oiled Manila
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Specialties

General Sales Office
LINCOLN BUILDING
60 East 42nd St.
NEW YORK

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, April 2, 1930.

Trading in the local paper market was moderately active during the past week. The movement of supplies into consumption was mostly along routine lines. Inquiries for future needs were fairly numerous. Reports from the sales forces of the leading paper houses are still optimistic and the outlook for the future is considered promising. Prices are holding to schedule, in most instances, although there are notable exceptions.

Conditions in the news print market are little changed although the various interests in the industry are reported to be co-operating in a more satisfactory manner than of late. Production is still being maintained at 72 per cent of weighted capacity in Canada and the United States, acording to information gathered by the News Print Service Bureau. Stocks at the mills are below normal.

There were no further developments in the paper board market. While demand for box board is fairly satisfactory the price situation continues unsettled. Book papers and ground wood specialties are moving in normal volume. Tissues are in seasonal request. The kraft wrapping paper situation is decidedly weak, although demand is expanding somewhat, due to the low prices being quoted.

Mechanical Pulp

Steadiness prevails in the ground wood market. Demand is normal and shipments against contracts are going forward in good volume. While production at home and abroad has been curtailed, offerings are about sufficient to take care of prevailing requirements. Prices are holding to previously quoted levels and there is little talk of concessions around.

Chemical Pulp

The position of the chemical pulp market is practically unchanged. Quotations on most of the various grades of imported and domestic chemical pulp are being maintained. The kraft pulp situation, however, is unsettled and prices are weak. Imported No. 1 kraft pulp is being offered at from $2.15 to $2.30, and imported No. 2 kraft pulp at from $2.00 to $2.15, on dock, Atlantic ports.

Old Rope and Bagging

Paper mill interest in the old rope market was more marked. Demand for both domestic and foreign old manilla rope was persistent. Prices ruled steady and unchanged. Mixed strings are moving in fair volume. The bagging market was fairly steady. Scrap and gunny were in satisfactory request. Roofing bagging was rather quiet. Prices are generally unaltered.

Rags

Some improvement was noticed in the local rag market. The various grades of cotton cuttings were in seasonal request, while white shirt cuttings were practically active. Roofing rags were in better demand than of late. The foreign rag market is beginning to arouse more interest due to recent concessions allowed by sellers abroad.

Waste Paper

Lower grades of paper stock used by the board mills continue quiet, although stocks in the hands of the manufacturers are belived to be below normal. The better grades continue to exhibit a strong undertone, especially soft white shavings. Demand for book stock is satisfactory. No radical price changes have been reported of late.

Twine

Demand for the various grades of twine is seasonal and conditions in the local market are favorable. Inquiries for future needs are being received in good volume and with the approach of Easter trading should continue lively for the next few weeks. Prices are generally holding to formerly quoted levels and shading is frequent.

Division of Cellulose Chemistry to Meet

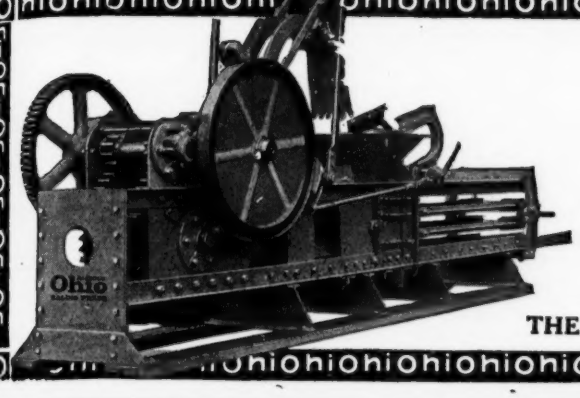
The American Chemical Society will meet at Atlanta, Ga., April 7-11. The Division of Cellulose Chemistry, E. C. Sherrard, chairman, C. J. Staud, secretary, will meet Tuesday afternoon April 8 when the following papers will be presented: "Reaction Variables in the Alkaline Pulping Process," C. E. Curran and M. W. Bray; "The Effect of Light on the Chlorination of Cross and Bevan Cellulose," Geo. J. Ritter and R. M. Seborg; "Comparison of the Thiobarbituric Method with the Phloroglucinol Method for the Estimation of Pentoses and Pentosans," Louis E. Wise and W. Reichert; "Gases Produced by the Decomposition of Nitro-cellulose and Cellulose Acetate Photographic Films," J. C. Olsen, A. J. Brunjes, and V. J. Sabetta; "Nature and Distribution of Redwood Extractive," E. C. Sherrard and E. E. Kurth; "Composition of the Residue from the Fermentation of Cornstalks", C. S. Boruff and A. M. Buswell; "Developments in the Manufacture of Cellulose Tubing, W. F. Henderson.

A. P. W. Paper Co. Gets Pulp on Hudson

ALBANY, N. Y., March 31, 1930.—Shipments of pulp are again being sent to the plant of the A. P. W. Paper Company from Nova Scotia and during the past week the Norwegian freighter Bauta docked with 1,500 tons. The company sent out a call for stevedores and several hundred men responded. A large force of employees from the mill also assisted in unloading the pulp which was completed late in the week. It was announced that the Bauta would return to this city with another cargo of pulp during the coming summer.

G. S. Brown to Head Purchasing Agents

TROY, N. Y., March 31, 1930.—George W. Brown, of the A. P. W. Paper Company, was nominated for president of the Eastern New York Association of Purchasing Agents at its annual meeting in the Hendrick Hudson Hotel. Among the other paper mill men nominated were T. C. Latham, of the Fort Orange Paper Company, Castleton, as assistant national director, and S. A. Barr, of the Behr-Manning Company, Watervliet, as a member of the executive committee.



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For Paper Products Manufacturers; Paper Box Manufacturers; Publishers; Paper Bag Manufacturers; Envelope Manufacturers; baling clippings, trimmings, etc.

3 Sizes to meet all requirements

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Cotton and Paper Rolls
Super Calenders
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Successors to the Granger Foundry & Machine Co.

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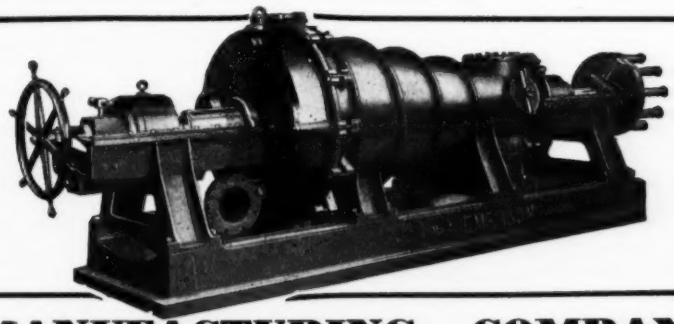
Kraft—

Ask us for results obtained by mills using No. 4 Emerson Jordans equipped with the Bolton Inverted Wedge Plug and Timken roller bearings. Let us quote on your requirements.



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SIZES 3" TO 42" DIAMETER

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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, April 2, 1930.

BLANC FIXE.—The postion of the blanc fixe market is practically unchanged. Demand for the pulp and the powder is fairly active. Prices are steady. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk, while the powder is selling at from 3¾ cents to 4½ cents a pound, in barrels, at works.

BLEACHING POWDER.—Conditions in the bleaching powder market are fairly satisfactory. Shipments against contract are moving at a seasonal pace. Prices are generally holding to previously quoted levels. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in drums, at works.

CASEIN.—Most of the business transacted in the casein market was routine. Domestic casein is quoted at from 14½ cents to 16 cents a pound, while Argentine standard ground is selling at from 14 cents to 14½ cents, and finely ground at from 15 cents to 15½ cents a pound, all in bags, car lot quantities.

CAUSTIC SODA.—Some improvement was noticed in the caustic soda market. The contract movement is well up to schedule. Prices remain unchanged. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—Steadiness prevails in the china clay market. Supplies are moving to the mills in normal volume for the season. Prices remain unchanged. Imported china clay is quoted at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—The chlorine market was moderately active. Shipments against contract are proceeding at a steady pace. Inquiries for future needs are fairly numerous. Prices remain unaltered. Chlorine is quoted at $2.50 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—Some improvement was noticed in the rosin market. Prices are firmer. The grades of rosin used in the paper mills are now quoted at from $7.90 to $8.55 per 280 pounds, in barrels, on dock. Wood rosin is selling at from $6.40 to $6.75 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—The salt cake market continues to exhibit a strong undertone. While the demand is persistent, offerings are scarce, and prices are steady to firm. Salt cake is still quoted at from $22 to $25 per ton, while chrome salt cake is selling at from $20 to $21 per ton, in bulk, at works.

SODA ASH.—Business in the soda ash market is fairly satisfactory. The contract movement is well up to average. Prices are generally holding to previously quoted levels. Contract quotations on soda ash, in car lots, at works, are as follows: in bags $1.32½; and in barrels, $1.55.

STARCH.—Trading in the starch market was mostly along routine lines. Contract shipments continue to go forward to the paper mills in good volume. No further price changes have been reported. Special paper making starch is quoted at $3.72 in bags, and at $3.99 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—Demand for sulpahte of alumina is fairly persistent. Shipments against contract are moving in a normal manner. Prices are unchanged. Commercial grades are quoted at from $1.40 to $1.55 and iron free at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Prices remain unaltered. Sulphur is quoted at $18 per ton, at mine, on orders of 1,000 tons, or over, on yearly contracts, and at $20 per ton for any smaller quantity over the same period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Production of talc is being maintained in sufficient volume to take care of current requirements. The contract movement is normal. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines, while imported talc is selling at from $18 to $20 per ton, in bags, ship side.

Market Quotations

Paper
(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@53.25
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00
Book, Cased—		
S. & S. C.	6.00	@ 7.50
M. F.	5.75	@ 7.00
Coated and Enamel	7.50	@12.00
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.35	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .80
Kraft	1.00	@ 1.10
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	6.00	@ 6.50
No. 2 Domestic	3.50	@ 5.00
Southern	3.00	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

News, per ton—		
Rolls, contract	62.00	@ —
Rolls, spot	62.00	@ —
Sheets	67.00	@ —
Side Runs	47.00	@52.00
Boards—per ton—		
News	37.50	@ —
Straw	52.50	@ —
Chip	35.00	@ —
Binders' Boards	65.00	@70.00
Wood Pulp	90.00	@95.00
65 Test Jute Liner	45.00	@47.50
85 Test Jute Liner	50.00	@55.00
Sgl. Mla. Ll. Chip	47.50	@50.00

Mechanical Pulp
(On Dock)

No. 1 Imported—		
Moist	30.00	@32.00
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	28.00	@32.00
Screenings	15.00	@20.00

Chemical Pulp
(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.25	@ 4.25
Easy Bleaching	2.80	@ 3.05
No. 1 strong unbleached	2.65	@ 2.75
Mitscherlich unbleached	2.70	@ 3.00
No. 2 strong unbleached	2.40	@ 2.60
No. 1 Kraft	2.15	@ 2.30
No. 2 Kraft	2.00	@ 2.15
Sulphate—		
Bleached	3.40	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.20	@ 4.75
Easy Bleaching Sulphite	2.65	@ 3.00
News Sulphite	2.50	@ 2.70
Mitscherlich	3.00	@ 3.25
Kraft (Domestic)	2.10	@ 3.30
Soda Bleached	3.10	@ 3.25
Sulphate Screenings—		
Coarse	.75	@ .95
Refined	1.65	@ 1.85

Domestic Rags
New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	9.25	@ 9.75
New White, No. 2	7.00	@ 7.50
Silesias No. 1	7.50	@ 8.00
New Unbleached	10.50	@11.00
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Blue Overall	7.25	@ 7.75
Washables	4.75	@ 5.25
Fancy	5.50	@ 6.00
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.15	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.50	@ 1.60
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.90	@ 1.00

Foreign Rags
New Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cuttings	10.00	@11.00
New White Cuttings	10.00	@10.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50

Old Rags

No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.75	@ 6.75
No. 3 White Linens	4.75	@ 5.25
No. 4 White Linens	3.00	@ 3.50
No. 1 White Cotton	5.50	@ 6.50
No. 2 White Cotton	2.75	@ 3.75
No. 3 White Cotton	3.00	@ 4.00
No. 4 White Cotton	1.95	@ 2.15
Extra Light Prints	1.95	@ 2.15
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	1.95	@ 2.10
Dutch Blue Cottons	2.15	@ 2.30
French Blue Linens	2.65	@ 2.75
German Blue Linens	2.30	@ 2.50
German Blue Cottons	2.00	@ 2.10
Checks and Blues	1.85	@ 2.00
Lindsay Garments	1.85	@ 1.95
Dark Cottons	1.45	@ 1.50
Old Shopperies	1.40	@ 1.45
New Shopperies	1.35	@ 1.40
French Blues	2.00	@ 2.10

Old Rope and Bagging
(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.50	@ 1.60
Domestic	1.60	@ 1.70
Wool Tares, light	1.60	@ 1.65
Wool Tares, Heavy	1.60	@ 1.70
Bright Bagging	1.60	@ 1.70
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	4.25	@ 4.40
Domestic	4.25	@ 4.50
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers
(F. o. b. New York)

Shavings—		
Hard, white, No. 1	3.00	@ 3.25
Hard, white, No. 2	2.40	@ 2.50
Soft, white, No. 1	2.55	@ 2.65
White envelope cuttings	2.90	@ 3.10
Flat Stock—		
Stitchless	1.45	@ 1.55
Overissue Mag.	1.45	@ 1.55
Solid Flat Book	1.40	@ 1.50
Crumpled No. 1	1.00	@ 1.10
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.40	@ 1.50
New B. B. Chips	.45	@ .55
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.50	@ 1.75
Extra No. 1 old	1.25	@ 1.35
Print	.60	@ .65
Container	.40	@ .50
Bogus Wrapper	.60	@ .65
Old Kraft Machine Compressed bales	1.65	@ 1.75
News—		
No. 1 White News	1.65	@ 1.75
Strictly Overissue	.55	@ .65
Strictly Folded	.45	@ .55
No. 1 Mixed Paper	.25	@ .30
Common Paper	.15	@ .20

This Digester Blow-off Valve will give you many years of service.

EXCEPTIONALLY long service under severe conditions is given by Eastwood "Perfection" Digester Blow-Off Valves. Chiefly because the disc and seat ring are *easily changed* when worn without taking the valve out of line. They come in acid-resisting Bronze, with Stainless Steel trimmings, if desired.

The valve is easily *cleaned* through the flanged cleanout handhole plate.

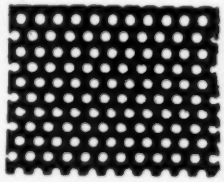
The disc is so heavy it *can't spring* under the heaviest strain. The detachable grease-case has thrust ball bearings at the yoke nut for easy operation.

EASTWOOD WIRE CORPORATION
Established 1877, Belleville, N. J.
"American Paper Made On American Wires"

EASTWOOD
"Perfection" WIRES
"Perfection" VALVES

Perforated Metal Screens
For Pulp and Paper Mills

STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.



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GIANT
RAGS — BURLAP
BAGGING — ROPE
JUTE BUTTS, MAGAZINES, CATALOGS OLD PAPERS, THREAD WASTE AND ALL GRADES OF RAGS CUT QUICKLY AND EFFICIENTLY WITH THE

TAYLOR, STILES & COMPANY GIANT RIEGELSVILLE, N.J. U.S.A.

This is the GIANT 2A CUTTER WITH A CAPACITY OF 3000 lbs. PER HOUR
GIANT RAG CUTTERS HAVE CAPACITIES OF FROM 1 to 5 tons per hour.

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H. T. BRAND COATING CLAY
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High Grade Filler Clay

Edgar Clays are the result of almost half a century of experience in Washing Clay. Technical Service available for both coating and loading without charge.

EDGAR BROS. CO.
50 Church St. New York

500 Tons Daily

We will be glad to send you samples—

Twines
(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine			
Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¼	@	.06½
Southern Kraft	4.25	@	4.50
No. 2 Kraft	.04	@	.04¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¾
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	37.50	@	42.50
Solid News	47.50	@	—
Solid News	40.00	@	45.00
Manila Lined Chip	50.00	@	55.00
Container Lined—			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.35	@	2.40
White Env. Cuttings	2.60	@	2.65
No. 1 Soft Shavings	2.10	@	2.15
No. 1 Mixed	.60	@	.70
No. 2 Mixed	.50	@	.60
Ledger & Writings	1.25	@	1.35
Solid Books	1.05	@	1.10
Blanks	1.60	@	1.65
Kraffts	1.65	@	1.75
New Kraft Cuts	2.15	@	2.25
Manila Envelope Cuttings	1.75	@	1.80
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.60	@	.70
Folded News (over-issue	.50	@	.60
Old Newspapers—			
No. 1	.60	@	.65
No. 2	.50	@	.55
Mixed Papers—			
No. 1	.45	@	.50
Roonng Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.05	@	.40
Ledgers	.08	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.09	@	.20
Book, M. F.	.05	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.09	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.07	@	.09
Manila Sul., No. 1	.04	@	.05½
Manila No. 2	.03	@	.04
No. 2 Kraft	.03¾	@	.05½
No. 1 Kraft	.05½	@	.06½
Common Bogus	.03½	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	70.00
News Board	37.50	@	38.50
Chip Board	32.50	@	35.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07¾
Silesias, No. 1	.07	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03½
Fancy	.05½	@	.06
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.65	@	2.75
No. 2 Hard White	2.30	@	2.50
No. 1 Soft White	2.25	@	2.50
No. 2 Soft White	1.40	@	1.60
No. 1 Mixed	1.40	@	1.50
No. 2 Mixed	.80	@	.90
Solid Ledger Stock	1.55	@	1.65
Writing Paper	1.00	@	1.15
No. 1 Books, heavy	1.15	@	1.20
No. 2 Books, light	.90	@	.100
No. 1 New Manila	2.30	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.40	@	.50
Container Manila	.30	@	.35
Old Kraft	1.40	@	1.50
Common Paper	.15	@	.20
No. 1 Mixed Paper	.15	@	.20
Straw Board, Chip	.35	@	.40
Binders Board, Chip	.35	@	.45
Overissue News	.40	@	.45
Old Newspaper	.25	@	.30

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
M. G.	7.00	@	—
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.65	@	1.75
Repacked	.01½	@	.01½
No. 2	1.20	@	1.25
No. 3 (Roofing)	1.10	@	1.20
No. 4	1.00	@	1.15
No. 5A	.75	@	.85
B	65	@	.75
C	.65	@	.75

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.06¼	@	.06½
No. 2 Kraft	.03½	@	.04½
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls .009			52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	37.50	@	40.00
Chip Board	35.00	@	37.50
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated Newsboard Bender	65.00	@	80.00
Wood Pulp Board	75.00	@	80.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.40	@	2.50
No. 1 Mixed	1.10	@	1.15
No 2 Mixed	.85	@	90
Solid Ledger Stock	—	@	2.25
No. 1 Books, Heavy	1.50	@	1.55
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	.90	@	1.00
White Blank News	1.60	@	1.70
Old Kraft	—	@	1.50
Print Manila	.80	@	.90
No. 1 Mixed Paper	.20	@	.25
Overissue News	.45	@	.55
Old Newspapers	.40	@	.45
Box Board, Chip	.45	@	.50
Corrugated Papers	—	@	.35

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.40	@	1.55
Manila Rope—			
Foreign	—	@	4.00
Domestic	—	@	4.50
Transmission Rope	2.25	@	2.50
Mixed Strings	.85	@	.95
Jute Wool Strings	1.00	@	1.05
Jute Carpet Threads	1.05	@	1.15
Scrap Burlaps	—	@	1.35
Scrap Sisal	1.55	@	1.65
Scrap Sisal for shredding	1.75	@	2.00
Wool Tares, heavy	1.60	@	—
New Burlap Cutting	1.75	@	2.00
Australian Wool Pouches	2.50	@	3.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.08½	@	—
Silesias, No. 1	.06	@	.06¼
New Unbleached	.09¾	@	—
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
O D. Khaki	.05	@	—
Corduroy	.03	@	.03¼
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	1.90
Black Stockings	—	@	4.00
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.40	@	1.50
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags
(F. o. b. Boston)

Dark Cottons	1.40	@	1.45
New No. 1 Shirt Cuttings	9.00	@	9.50
Dutch Blues	2.00	@	2.12½
Lace Curtains	4.50	@	4.75
New Checks & Blues	4.25	@	4.60
Old Fustians	1.90	@	2.00
Old Linsey Garments	1.80	@	1.85

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	11.50	@	—
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
White, No. 2	2.00	@	2.25

(Delivered Toronto)

News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

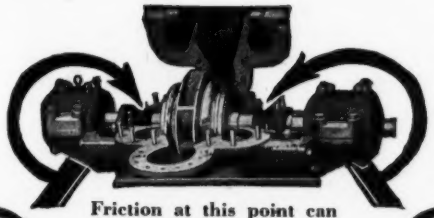
Ground Wood	31.00	@	32.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	60.00	@	—
Sulphite, bleached	77.00	@	78.00
Sulphate	60.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.85	@	—
Strictly Folded	.85	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09¼	@	.10
Fancy Shirt Cuttings	.06	@	.06¼



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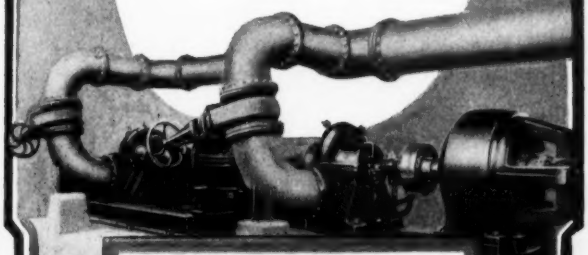

GREEN, TWEED & CO.
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109 Duane St. New York

PAPER TRADE JOURNAL
ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-EIGHTH YEAR

Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President — J. BANNINGA, Sec.-Treas.

Executive and Editorial Offices: 10 East 39th Street, New York
Chicago Office: 123 West Madison St.

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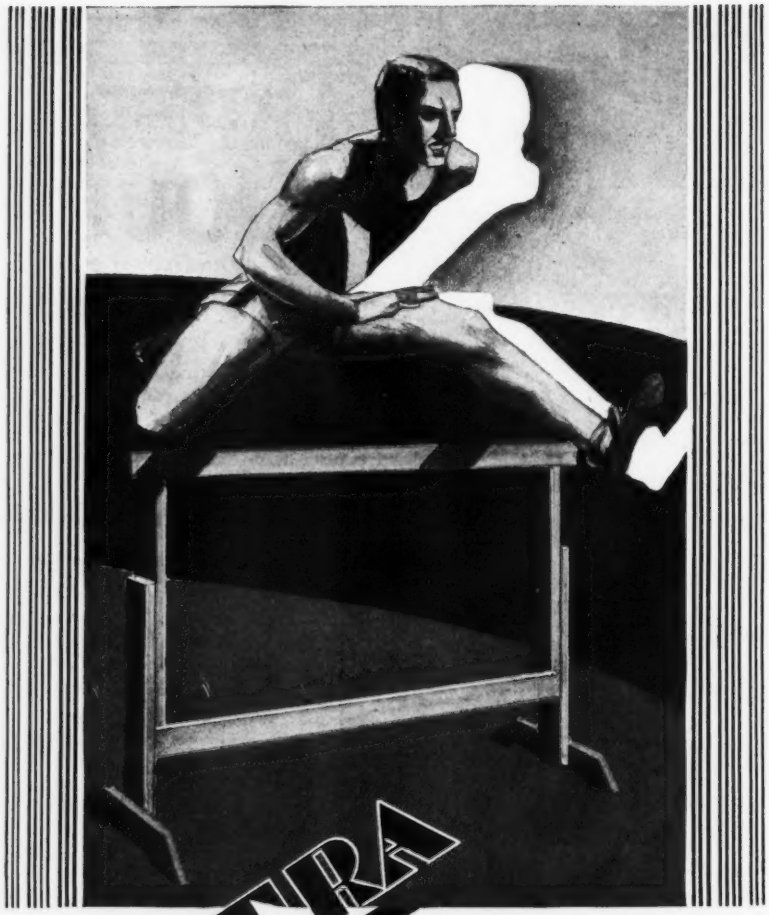

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